Northern California's Computer Magazine

Jan. 22, 1992 • 91

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MicroTimes™

Dvorak On The Meaning Of Technology: Page 242

THE 5th ANNUAL MICROTIMES

100

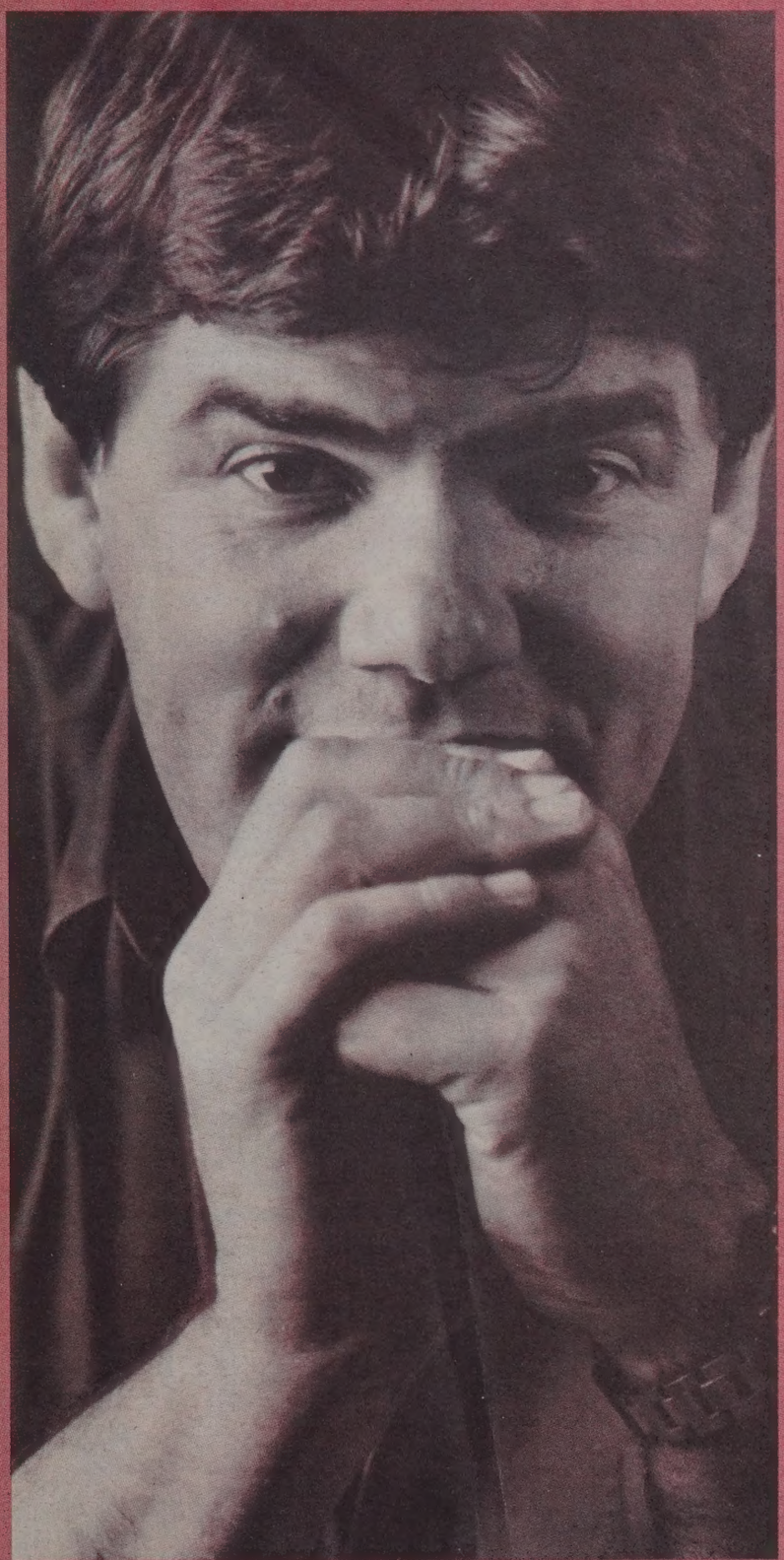
Our list of industry leaders and unsung heroes who made a difference in the computer world in 1991. Story starts on page 56

MAN OF THE YEAR

Philippe Kahn

Chairman, President, and CEO
Borland International

"Borland has a strong stance for innovation. Unlike Lotus, we don't believe in litigation as a way to gain a business advantage. We're a technology driven company." Story on page 54



NeXT Sells The Dream—To MIS

The MicroTimes Interview With Steve Jobs, Part 1 By John Perry Barlow

"We saw IBM walk in the front door of corporate America and not pay any attention to the individuals, and gradually over time, grab the dominant share of individual use. So our path, for good or bad, is going to be more like IBM's." Story starts on page 46

NeXTWORLD Expo Preview: Page 52

Workstations: Mac Meets Iris

By Tony Reveaux

"With the advent of Apple's QuickTime, there will be a great deal of motion traffic from Mac to SGI. Two new packages, one for Silicon Graphics Iris machines and one for Macintosh, address the need for quality text in multimedia presentations." Story starts on page 192

Online Systems: Which One's For You?

By Brock N. Meeks

"Sometimes the choice of an 'online home' boils down to what can only be described as a 'feeling.' On a huge system such as CompuServe, the system can feel impersonal; on a system such as Delphi, there is more the feeling of a small town." Story starts on page 103

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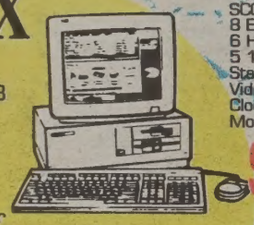

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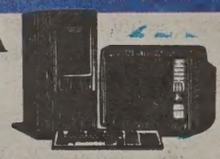

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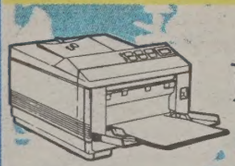

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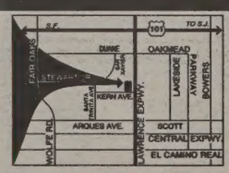

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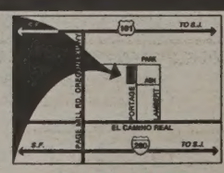

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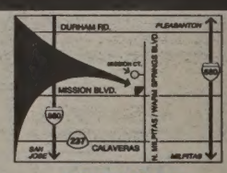

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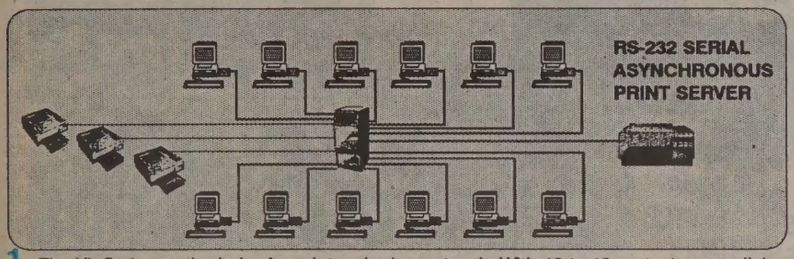

1. The XL-Series as the hub of a printer sharing network. With 10 to 18 ports, two parallel connectors and RJ12 twisted pair connectors for the remainder, this configuration allows you to create a stand-alone network and add stations as required.

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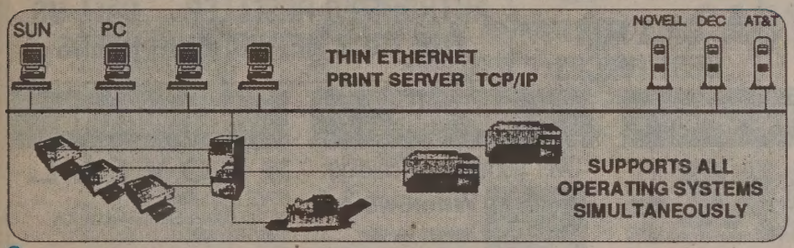

2. The XL-Series as an Ethernet TCP/IP print server. Connect the unit as one of the nodes on your network and link-up to any one of 10 to 18 printers.

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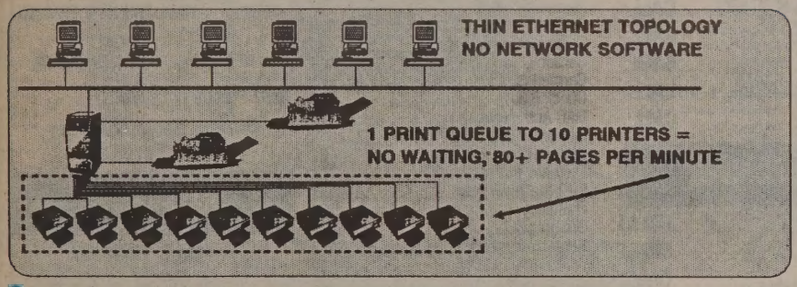

3. The XL-Series as a print server or peripheral sharing hub - using thin Etherent cables, but without network software. Ten printers in a class yield 80 pages per minute output - no queues and no waiting.

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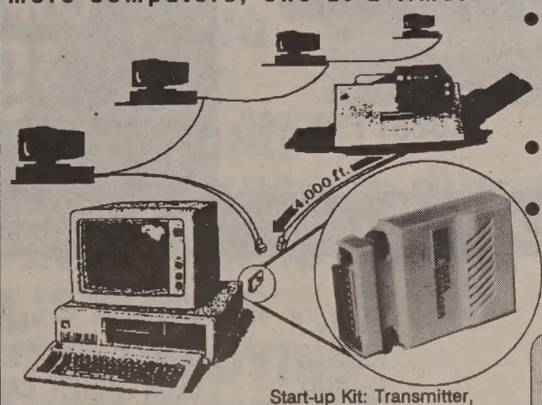

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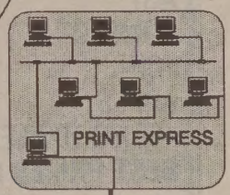

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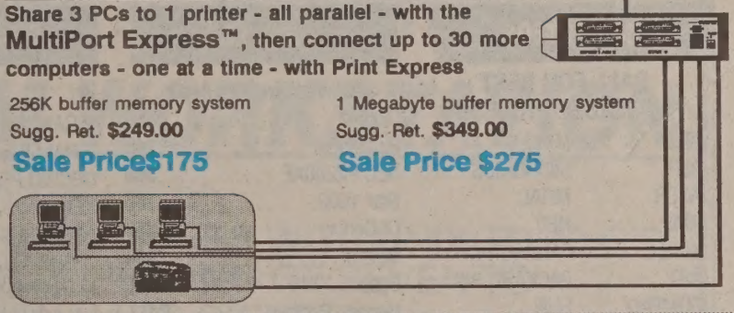

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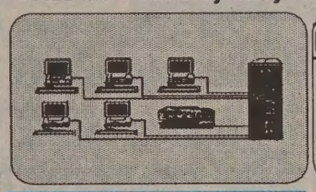

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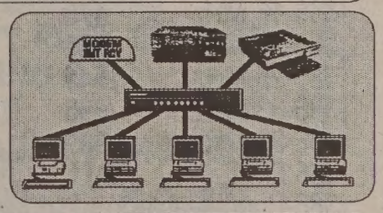

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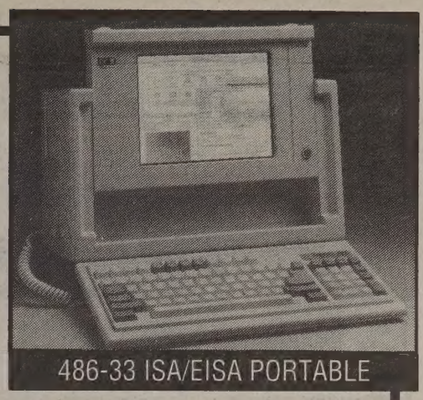

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Special Advertising Section For Bay Area Computer Buyers Starts On Page 70

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A NOTE FROM THE EDITORS

This issue brings the 1991 edition of the MicroTimes 100, our annual list of people who've had a significant impact on the state of the industry in the preceding year.

History may well remember 1991 as a year of disintegration and rebuilding. Industry giants like Apple, Compaq, and IBM found themselves in the process of self-reinvention; Microsoft and IBM's longtime alliance fell apart, sending shock waves through the development community and spawning a plethora of new consortia.

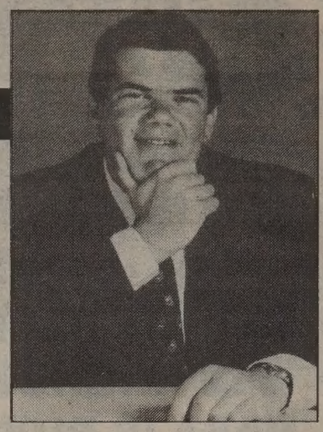
Probably the biggest shock wave came from the surprise announcement by Borland International that it was acquiring troubled software giant Ashton-Tate, a move with strong implications for the evolution of future database technology, to say nothing of corporate culture. Man of the Year and Borland CEO Philippe Kahn gives us a short update on page 54.

And in another dramatic development, John Perry Barlow succeeded in interviewing the elusive Steve Jobs. Part 1 of the interview, along with a preview of NeXTWORLD Expo, starts on page 48.

As 1992 gets under way, all of us at MicroTimes would like to thank you for your support and wish all of you a happy and prosperous year.

—ME

COVER STORY



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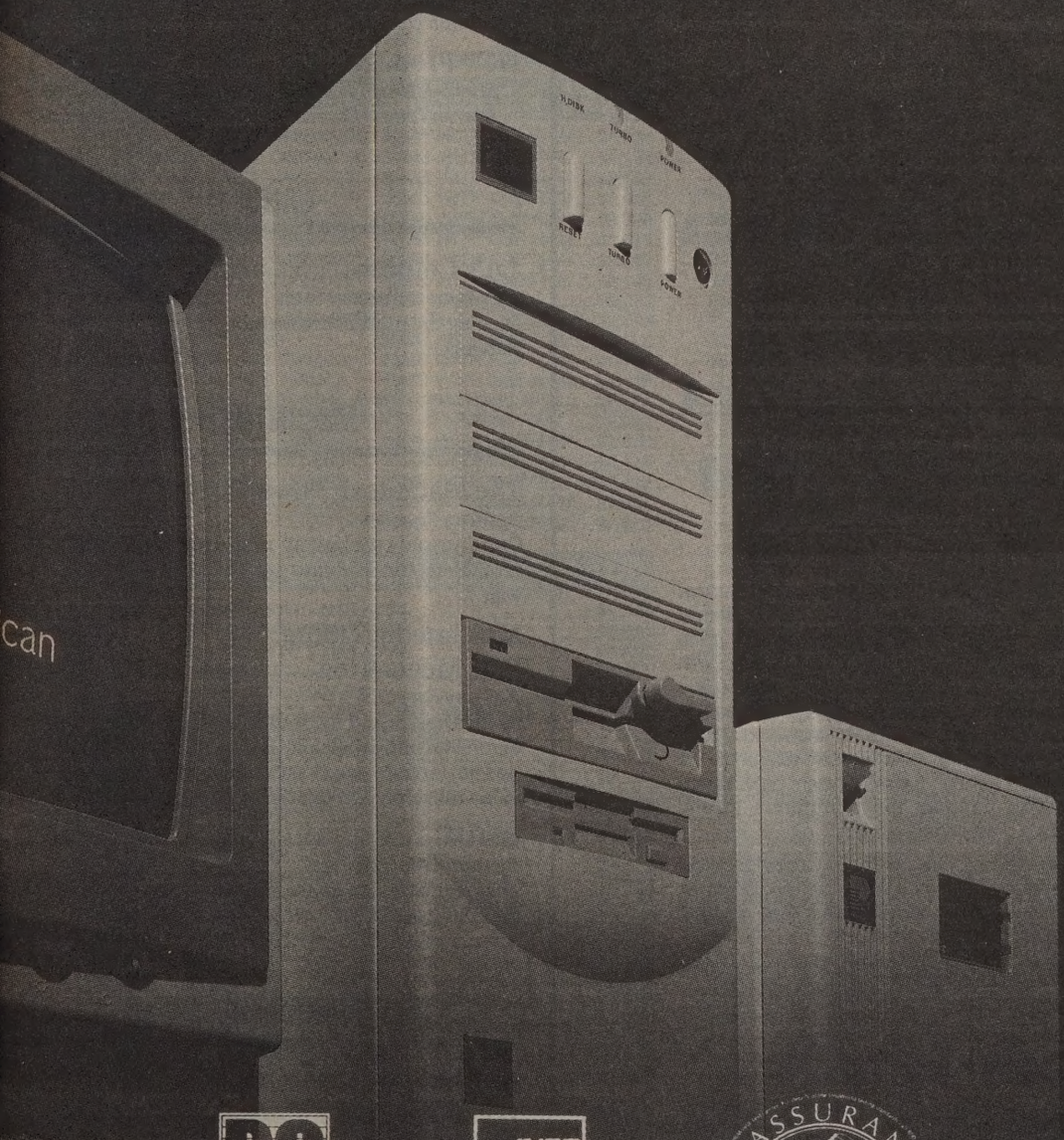

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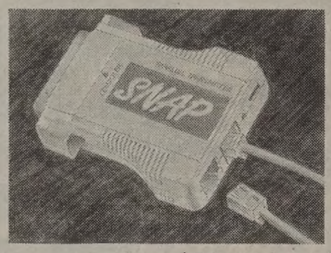

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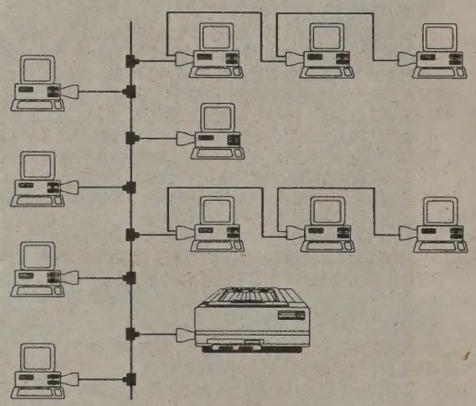

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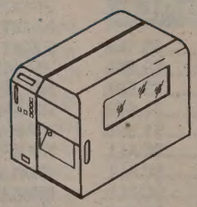

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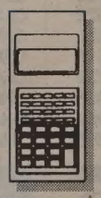

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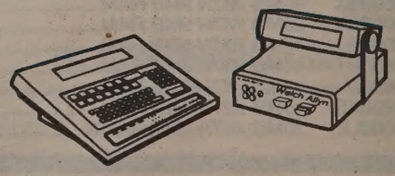

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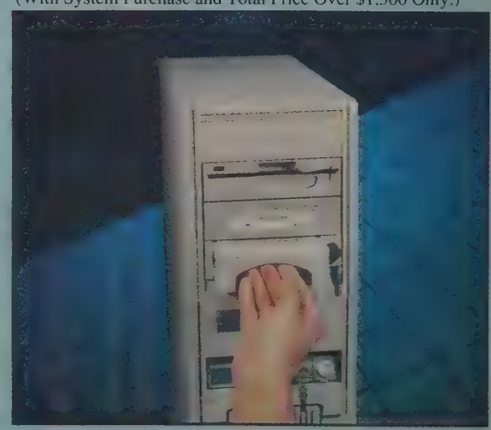

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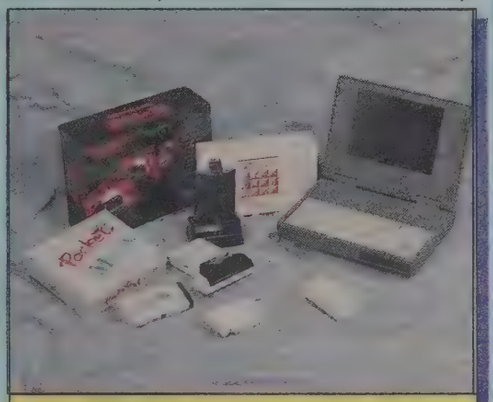

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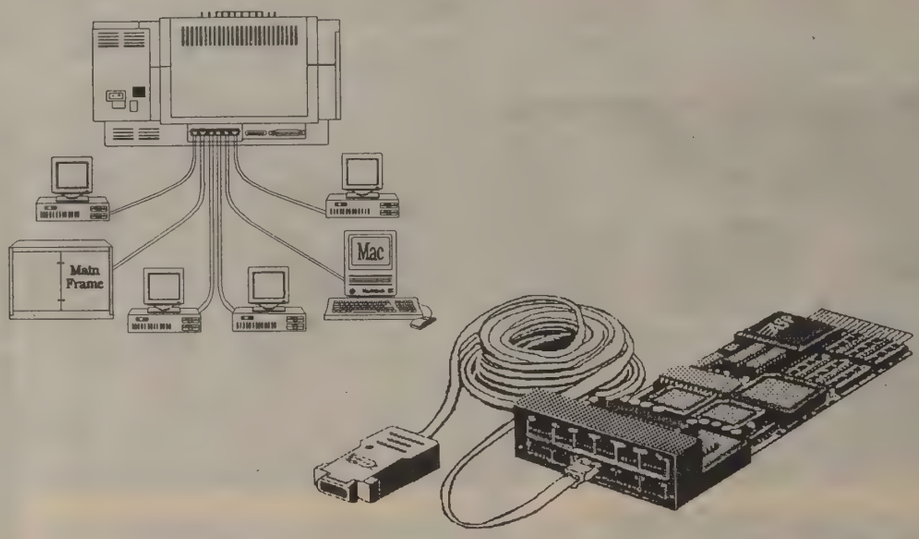

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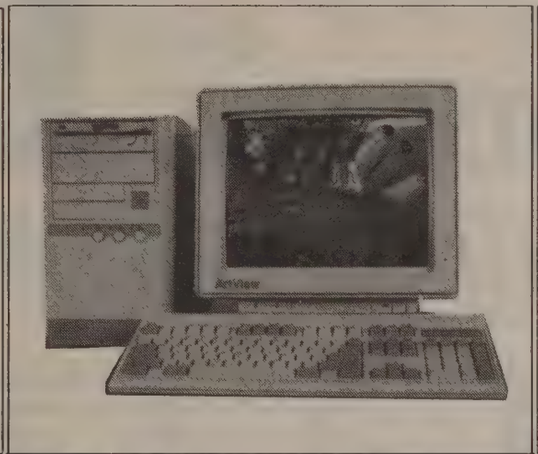

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INDUSTRY INSIGHT

Dawn Of The Baby Blues

BY PAUL HOFFMAN

BIG CAPITALISM FOLLOWS BIG COMMUNISM—IBM TO BECOME AUTONOMOUS REPUBLICS

IBM's reorganization into units with a great deal of independence will certainly have long-term effects on the personal computer industry, and should be seen as good news to PC users. Even if you don't use any IBM hardware or software, the announcement represents a strong new player in the PC field that will be much less encumbered by an old-style bureaucracy than in the last ten years.

At the same time, IBM announced that it will force an early retirement or layoff of another twenty thousand workers, coming after last year's attrition of twenty thousand. This move was made both for cost-cutting purposes and to allow managers of the newly spun-out divisions to work with less corporate overhead. The cuts come across the board, from management to manufacturing to research. IBM's move was applauded by Wall Street and major IBM clients as a method for becoming more resilient in the coming recession.

It is not clear exactly how the divisions will be split up, but some announcements have already been made. The division of most interest to PC users is Personal Systems, a single division for PCs and workstations, essentially a division for single-user hardware. Another division, Application Business Systems, would be for the highly successful minicomputer line, the AS/400. There will be some overlap between those divisions in high-end PCs that can handle up to ten users, such as those with 80386 and 80486 processors running UNIX. If these two divisions stay separate, you will see significant competition between them for the small workgroup, and it is likely that the PC division will win handily.

This is precisely the type of competition that IBM Chairman John Akers is hoping for. The AS/400 group has a strong following and can probably keep most of its customers happy for many years. In the past, the PC group has always downplayed multiuser PC strategies by releasing cheesy multiuser operating systems that couldn't compete with those from software-only competitors like Santa Cruz Operation and Interactive (whose UNIX operating system group is now part of Sun Microsystems). By releasing uncompetitive multiuser operating systems, IBM could tell its large clients that it was keeping up with the latest trends, while not cannibalizing its higher profit margins on its minicomputers.

Many of the parallels between the new IBM and the new Soviet maybe-a-Union run deep. Although Akers did not need to manufacture a coup attempt, he did have to make both the shareholders (parliament) and large customers (citizens) believe that IBM could not succeed much longer following its present path. He proved his leadership by laying off workers, something that had always been inconceivable in the past, and reaping unexpected profits for it. He made a scapegoat out of his head of operations George Conrades (the KGB), a mainframe man, by replacing him with Robert LaBant, the head of the AS/400 group. The divisions (republics) will still be held accountable to the central office, but they will be able to compete with each other and to make deals with non-IBM companies that were unthinkable until recently.

The PC market may never be the same. An independent PC division would be free to buy chips from any vendor, not just IBM. This

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) and MCI Mail (264-3171). He also writes popular microcomputer books.

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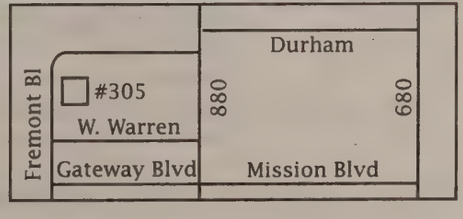

The PC market may never be the same. An independent PC division would be free to buy chips from any vendor, not just IBM. This will both reduce the price of IBM's PCs and workstations and give major chip manufacturers a much larger market.

means that IBM's chip design group will probably wither away, except in areas in which they excel, such as high-end CPU design. This will both reduce the price of IBM's PCs and workstations and give major chip manufacturers a much larger market. As IBM accelerates the drop in PC prices, its large competitors like Compaq will have to respond quickly or lose customers who previously only stayed away from IBM due to price. Other effects may be a resurgence in interest in the MicroChannel bus, since the new division may be more aggressive in low-cost licensing so as to build its own market, similar to Sun's licensing of the SPARC CPU.

Who gets OS/2? No one knows. Akers may award it to Jim Cannavino, the head of the new PC division, or he may form an operating systems division across all lines, or he may make a division parallel to the Personal Systems division, for systems software only. They would be responsible for MS-DOS or a clone, and for OS/2, as well as for monitoring and supporting Windows and Taligent (IBM's joint venture for operating systems with Apple).

If there is a monolithic operating systems group that extends from mainframes to micros, you can kiss OS/2 good-bye, permanently. As anyone who has worked with IBM's mainframe operating systems like MVS and VM knows, change is glacial, and significant new versions appear once or twice a decade. On the other hand, if OS/2 and Taligent land in a PC-based group, they will probably flourish. IBM's recent move to make OS/2 work on competitors' hardware will move ahead at a faster pace and Taligent will come out as a significant competitor on many computers, not just IBM's.

PC users should not overlook the other new IBM divisions. For example, the new Storage Products division in San Jose is well respected by IBM's competitors for making high-quality and very reliable disk drives and tape backup systems. Although never cheap, their products are fast and usually incorporate state-of-the-art technologies. With sales of over $10 billion a year, it will be one of the largest employers in Silicon Valley at a time when other disk drive manufacturers are rapidly laying off workers. Although most of its sales come from the mainframe side, the division could become a major player in the high-end PC drive market as it moves the high-end technology down to personal computers.

The cuts come across the board, from management to manufacturing to research. IBM's move was applauded by Wall Street and major IBM clients as a method for becoming more resilient in the coming recession.

PRESIDENT BUSH SIGNS NEW SUPERCOMPUTER, SUPERNETWORK AUTHORIZATION

The United States will spend three billion dollars over the next five years to develop new high-speed computer technologies. The bill essentially authorizes the government to create an extremely fast network between government and university supercomputers. Although President Bush said he would have preferred funding from private industry, it was clear that the recession had prevented any company or consortium from putting up the money.

At the signing, Bush said, "The development of high-performance computing and communications technology offers the potential to transform radically the way in which all Americans will work, learn, and communicate in the future. It holds the promise of changing society as much as the other great inventions of the 20th century, including the telephone, air travel, and radio and TV."

What he failed to discuss was that other countries, notably the European Community and Japan, are already way ahead of the US on setting up large high-speed networks. In addition, Japanese companies are making inroads into the supercomputer market and will pose significant competitive threats within a few years.

After the bill passed, executives from DEC, Apple, and Compaq met with government officials in hopes of broadening the scope of the project past supercomputers. They said the network would be too important just to be used at universities, and should have commercial uses as well. Because supercomputers handle huge amounts of data, the need for being able to share that data is also huge. However, supercomputers address few of the nation's major problems. Allowing other companies to use the network (at a price) would bring us in line with other countries where the high-speed networks are available to everyone.

Continued on page 167

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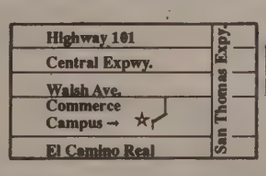

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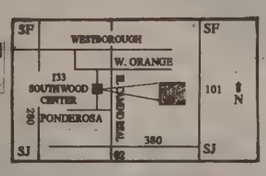

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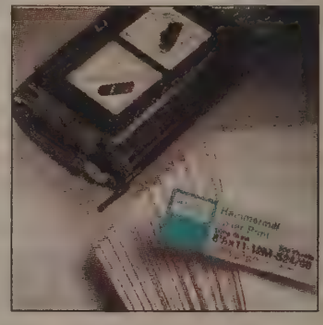

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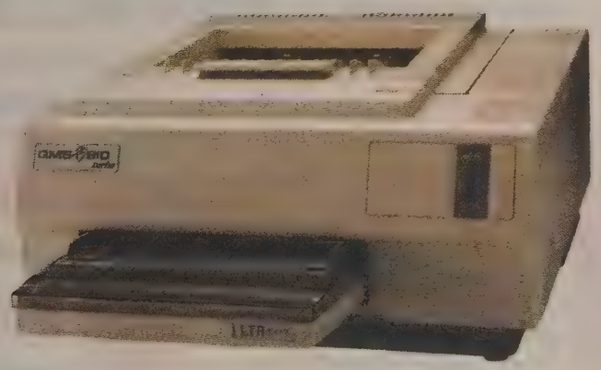

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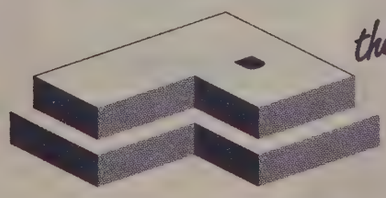

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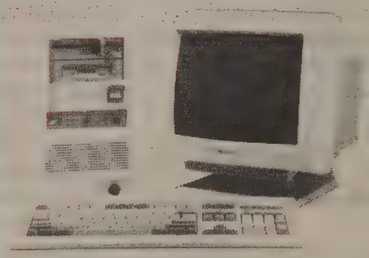

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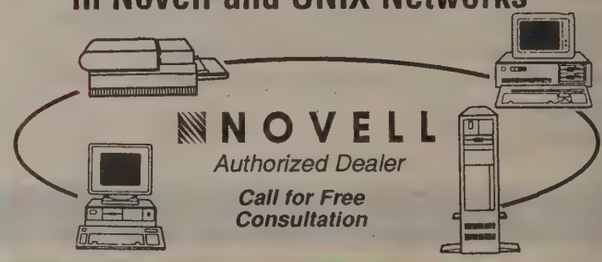

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Freedom Vs. Privacy?

BY JIM WARREN

Each month, this concerns what we haven't done, but could—for better or worse. Not hobbled by consistency, this particular column promotes conflicting ventures.

REALIZABLE FANTASIES

For well over half a century, your phone made you a sitting duck, even in the deepest recesses of your home. You were an easy target for any intruder who could discover your number—just like your doorbell, except intruders didn't have to walk over.

In the last decade or so, the answering machine's call-screening feature became the Great Equalizer. It's the peephole allowing you to covertly watch callers' comments before answering. All you have to do is subject every caller to a message of arbitrary length that's totally unneeded when you're listening.

Copyright © 1991 by Jim Warren, 345 Swett Rd., Woodside, CA 94062. All rights reserved. *Jim Warren founded* InfoWorld, *the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various computer professionals' organizations. He holds graduate degrees in computing (Stanford, before the tax-paid overhead ripoff), medical information science (UC Medical Center), and mathematics. He is also a member of the Board of Directors of Autodesk, Inc.*

He organized and chaired the recent First Conference on Computers, Freedom & Privacy, sponsored by a dozen nonprofit and industry organizations, and is currently chairing Autodesk's CEO-Search Committee.

Call-screening is useful against unwanted intruders, but it's rather impolite for friends. Its protection is somewhat akin to answering every knock at your door with a six-shooter pointed at each daring visitor.

Recently, where permitted by utilities regulators, the RBOCs—regional Bell-telephone operating companies—have begun offering "caller ID." This allows you to identify the phone number from which a caller is calling. (You *have* memorized the phone numbers of everyone you want to talk to, haven't you?)

This has been available for some time to businesses that pay the charges when you call them via an 800 number. They get to capture your phone number and use it as they please. Ditto for 911 emergency-number calls. In both cases, most users are unaware of this "covert surveillance." If you want to hide your identity, don't call 911 or 800 numbers.

Controversy surrounds caller ID. Many people—even telemarketers—want to remain anonymous when they call a business or hotline. Those desiring covert calling capability have urged that, if caller-ID services are to be permitted, they should be balanced with a service inaccurately named "call blocking." Despite its name, call blocking does not permit you to block calls. Instead, it permits your anonymous callers to block you from seeing their phone number.

ENTREPRENEURIAL PHONE OPPORTUNITIES

Escalating this phone war, the next weapon will obviously be a phone that you can set to refuse calls unless it receives the caller's phone number.

And if you haven't memorized the nation's phone books, you can route that caller ID into your PC's computerized phone directory to see who's calling. There are numerous ventures now underway to "publish" entire regions' phone "books" on CD-ROMs; several are already available.

Whooppps! That's a database of personal information—another politically incorrect information technology. But computerized phone books could replace environmentally incorrect paper phone books. *Oh!* I'm *so* confused.

Of course, the RBOCs get to charge for each new service. And we computer entrepreneurs get to profit from each new infoweapon. Perhaps the most positive aspect of this ever-escalating privacy war is that most of it doesn't yet consume massive tax funds. And so far, its profiteers aren't DOD contractors.

INTELLIGENT CALLER ID

Here's a more positive variation on the caller-ID option, suggested by Roger Schlafly of Soquel. With or without call-blocking, expand caller ID to include a type-of-call code—personal, emergency, return call, business, unsolicited sales call, low-priority message, computer-generated "robot" voice-message, modem, fax, etc.

Intelligent answering machines could then use this type-of-call

There are numerous ventures now underway to "publish" entire regions' phone "books" on CD-ROMs; several are already available. Whooppps! That's a database of personal information—another politically incorrect information technology. But computerized phone books could replace environmentally incorrect paper phone books. Oh! I'm so confused.

code to decide how to treat and route the incoming call.

And, people favoring ever more government "protection-against-everything" could advocate laws prohibiting false use of these codes—just as laws require truth in advertising.

"GOOD" ROBOT PHONE CALLS

As of this writing, Congress was finishing legislation to prohibit those infuriating computer-generated telemarketing phone calls. But will it be carefully crafted legislation, or just a ham-fisted blanket prohibition on *all* automated calls?

Will it prohibit automated calls for which you have granted prior permission? Wake-up calls, etc.? (Probably not.)

How about automated public-agency calls concerning events or plans directly affecting you or your home or your community? Will sloppy legislative phrasing prohibit "Evacuate now!" calls that could help in disasters such as the Oakland firestorm? What about warnings of nearby street closings for repairs? Notices of hearings about property development planned in your neighborhood? Or of major changes proposed for your school's programs? How about schools' increasingly used automated calls notifying you of your child's absence? (Ahh, if kids could only vote!)

What if a public agency can't afford to—or doesn't want to—actively keep its citizens informed of major events impacting them? Will ill-phrased legislation prohibit community groups from using electronic "volunteers" to contact you about plans with an impact on your community?

The solution may be to regulate commercial speech differently from noncommercial speech—a practice well established in law. If so, should funds solicitations and raffle-ticket offers be treated the same as sales calls? What about automated telephone polls? What about political advocacy communications, which delineates a free society from a totalitarian state?

The question is: What limits do you want on your Freedom of Speech in order to protect your Right to Privacy—and precisely how should those limits be imposed on modern communications?

A "STOLLIC" VIEW

Cliff Stoll (author of *The Cuckoo's Egg*) and I were among those invited to testify at some "Right to Privacy" hearings of the state Senate Judiciary Committee last December. After the hearings, we chatted for a while about freedom, privacy, and community. He concisely posed a view that I find true—and compelling:

When we enter a community, we give up some of our privacy. The more we participate in our community, the more privacy we give up.

Thus, the question becomes: How shall We, the People, protect our ability to communicate within our communities, while also protecting ourselves against unsolicited communication from our communities?

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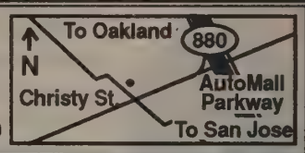

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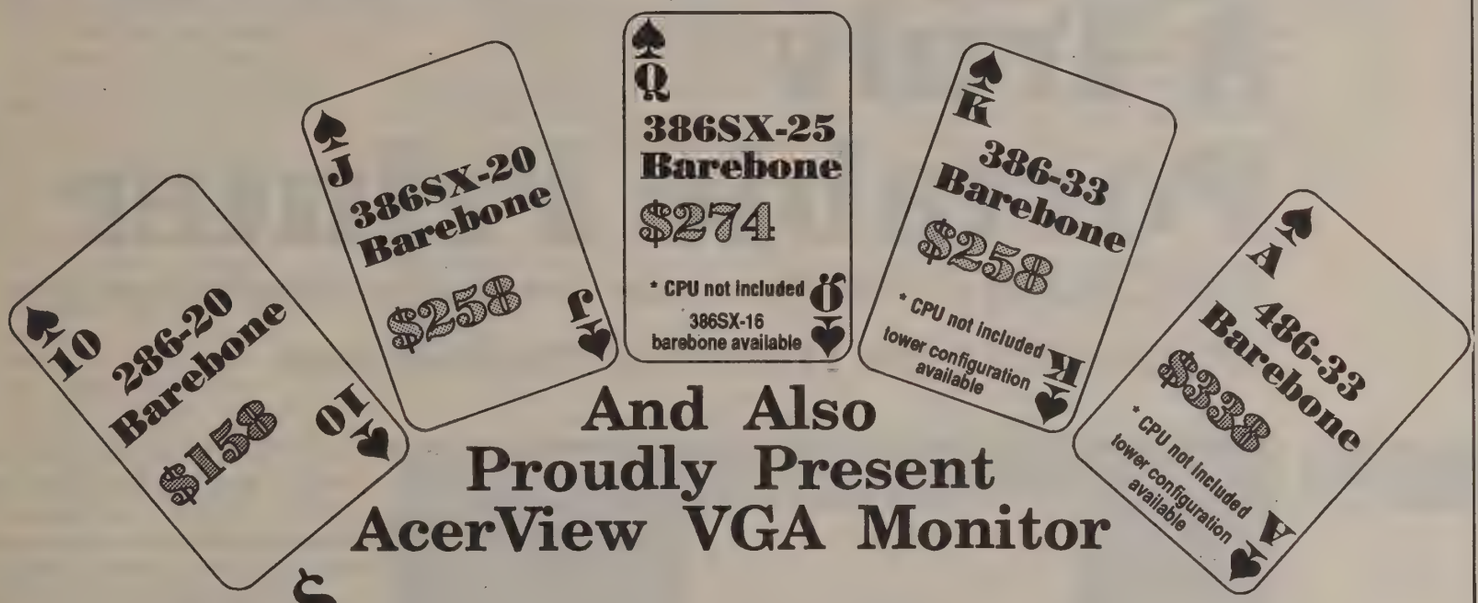

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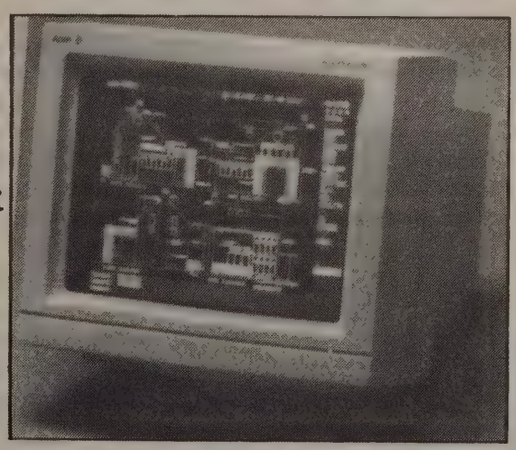

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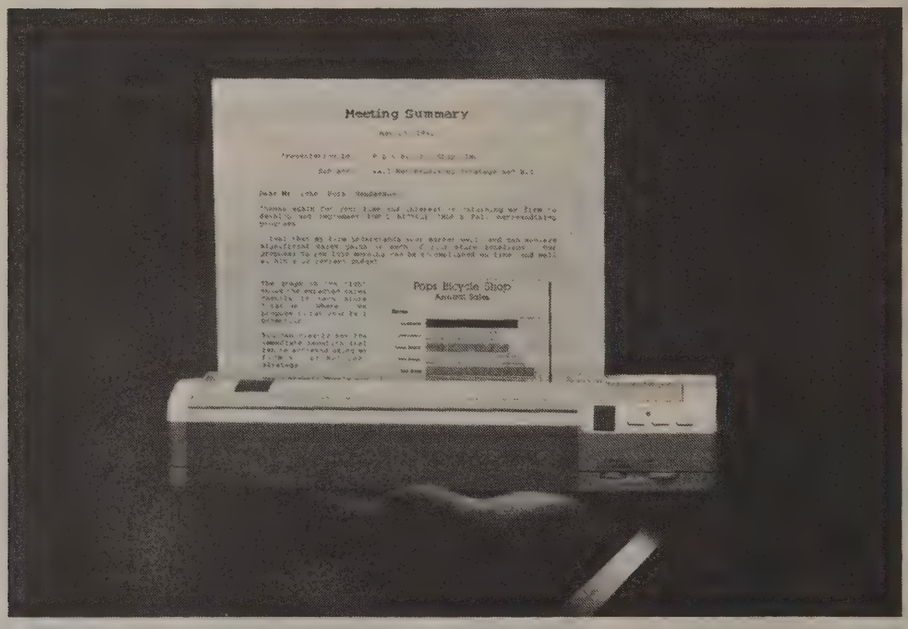
A Truly Portable Printer

The Citizen PN48 Provides Versatile, High-Quality Printing For The Traveling Professional

BY ED KAHN



RESOURCES:

Citizen PN48 Notebook Printer, $549
Citizen America Corp.
2450 Broadway
Santa Monica, CA
90411-4003
(310)453-0614

No matter how small portable computers become, the busy, mobile user must still worry about printing their documents. While there are other very good portable printers available, finally, a unit small enough to fit into a notebook computer carrying case has been introduced—the tiny Citizen PN48. It provides an excellent solution for high-quality, quick printouts.

There are, of course, tradeoffs for choosing this printer. It is designed for a specific use: printing a few documents in high quality when you are away from a larger printer. Don't get this printer with the idea that it will replace your regular machine. It won't. But the main advantage of this unit is its size. It measures approximately 12" x 3.5" x 2" and weighs only 2.5lbs. including the rechargeable battery.

This printer offers neither a cut sheet feeder nor pin feed capability. It's designed strictly for one page at a time. But it will give you a letter that will rival one printed on a laser printer. Admittedly, it will take a little longer to get the job done, but, nevertheless, it will be done very well.

The PN48 uses a thermal technology. Two ribbon cartridges come with each printer. One is a multistrike model, reusable five times, that provides draft-quality documents. The second is a single pass ribbon that produces quality printing. Currently, only black ribbons are available. Included with the printer is a vinyl carrying case, a printer cable, and an AC adapter that also serves as a battery charger. One change I would recommend is to redesign the carrying case to hold the printer *and* its cable. Since you need to carry the cable, why not have it fit into the carrying case and allow you to keep everything together?

The PN48 will print twenty to twenty-five pages of average text, or only about twelve to fifteen pages of graphics, on a single battery charge. It takes approximately six hours to recharge the included NiCad battery pack.

This printer offers a good deal of versatility despite its small size. It can print paper, envelopes, and transparencies. There are two methods to choose to feed the paper. You can load it from the rear of the unit, in which case it will handle paper up to 10.2" wide and up to 20lb. stock. Or if you load the paper from the bottom, you can use a heavier stock, but it will only accept paper up to a width of 9.6".

The Citizen PN48 works with Epson and IBM printer drivers. These two drivers, nearly universal, ensure that you will be able to print from almost any software. A dip switch inside the printer chooses between the two emulations as the default. The printer provides two letter-quality typefaces, Roman and Courier, and the characters per inch setting can range from ten to twenty.

A final feature to mention for this printer is the documentation. This spiral bound booklet is wide and shallow making it easy to be carried with the printer for quick reference. It is extremely well organized and contains specific instructions on how best to use the printer with specific software. Besides the printed booklet, there is a disk that can be installed on your portable computer that goes into great detail about everything to do with the Citizen PN48.

Overall, this is a remarkable product. As long as you are aware that you are buying a printer designed to offer high-quality output of limited quantity, it is a product to examine in detail and consider adding to your computer travel kit. The printer comes with a twelve-month warranty. ■

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Computer Of The Month

AT&T Safari Notebook

People often ask me which portable is best and I always hedge my bets in giving an answer. In fact, these days all of the portables are pretty good and they all do the job well. But, if price is no object, there now seems to be a clear winner: the AT&T Safari Notebook. The new model comes with an 80MB hard disk, a 3.5" 1.44MB floppy drive, a 2400/9600 baud modem/fax, an incredible amount of software (including Windows 3.0, MS-DOS 4.01, and communications software), a mouse, and finally, a carrying case.

The Safari is one of the most beautifully designed notebook computers I've used. It measures 12" x 9.5" x 1.8" and weighs 7.3lbs., including two rechargeable NiCad batteries and an AC adapter that also recharges the batteries. It is powered by a 20MHz, 80386SX processor with 4MB of RAM standard, expandable to 8MB.

The 10" LCD screen displays crisp, clear black images on a white background and differentiates thirty-two shades of gray. If you need color, you can connect a VGA or super VGA color monitor to the Safari through the port on the back.

The 82-key keyboard is designed with the keys far enough apart for fast touch typing. Like most of the best-designed keyboards these days, there are separate PgUp, PgDn, Home, and End keys. If you prefer your own keyboard or a numeric keypad, it can be attached through the port normally used for the mouse. You can still connect the mouse, which comes standard, through the serial port.

The battery and power management features of the Safari are excellent. Two batteries are included and can be installed simultaneously. Fortunately, they are light enough so that the machine does not become too heavy when they are both installed. Anyhow, the batteries will last from between four and six hours depending upon your use and the level of power management you select. The most extreme setting for power management gives you a longer running time, but will not let you use Windows. However, even the shorter four-hour time span is longer than most competing models offer.

This very beautiful machine is designed not only for your needs today, but also for tomorrow's. As we might expect in a portable computer from a telephone company, this unit features strong communication capabilities. In addition to the fax/modem software mentioned above, there is also a program called Mail that allows you to send and receive electronic mail as an AT&T EasyLink Services subscriber. A free introductory offer to new owners allows them to establish an account and try out the service. You access this email service through a toll-free number.

EasyLink is worthy of its own article, but it is appropriate here to mention that the capabilities of this new service could easily become a standard in the future. A standalone pager designed to accept messages alerts you to new messages and lets you either read it out or download to the Safari Notebook. A cellular module that will allow EasyLink's paging services to connect directly to the computer will be available in the near future.

This is a really beautiful machine that not only works for today, but is designed for tomorrow. As we might expect in a portable computer from a telephone company, this unit features strong communication capabilities. In addition to the fax/modem, there is also a program called Mail that allows you to send and receive electronic mail if you are a subscriber to AT&T's EasyLink Services.

RESOURCES:
AT&T Safari Notebook (NSX-20), $5749
Safari Systems
14 K Worlds Fair Dr.
Somerset, NJ 08873
1-800-247-1212

Safari users can also access close to 850 database services through EasyLink: these include financial services and investment programs, as well as a wide range of other information databases that are helpful to traveling professionals.

In addition to its outstanding design and capabilities, the documentation is simple and straightforward. Not to be overlooked, there is a Tour Guide tutorial that comes up when you first turn on the machine. After walking you through the hardware and software it ends by asking if you would like the computer to open with a DOS prompt or inside Windows. The autoexec.bat file is automatically reconfigured to reflect your choice.

Check this machine out even if it appears to be out of your price range. A 40MB version of the Safari Notebook, minus some of the more advanced communications features, is also available for $4199. ■

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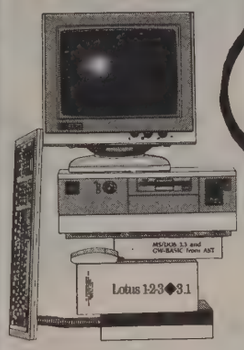

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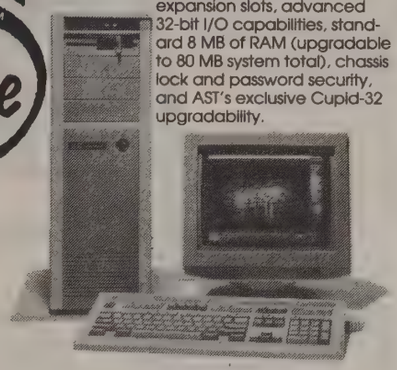

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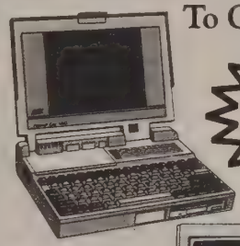

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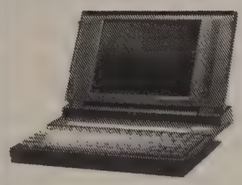

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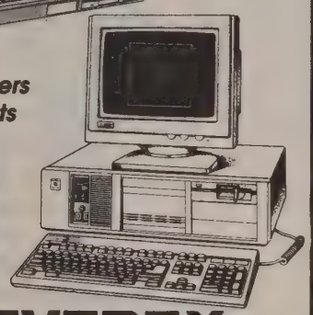

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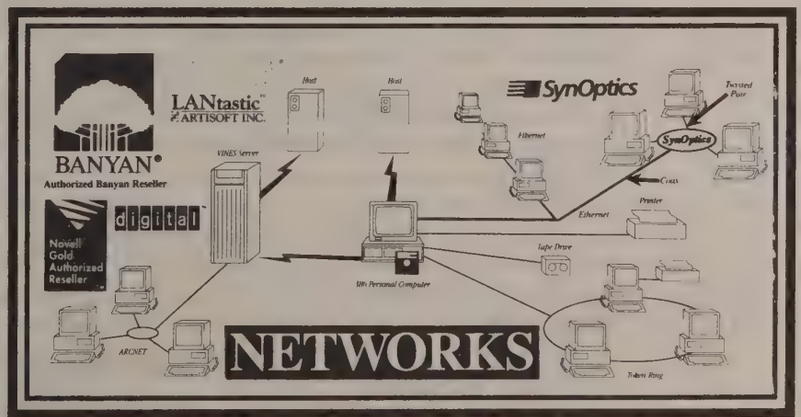

The Macintosh PowerBook 170

Quite Possibly, The Best Machine Apple's Ever Made...

BY MARY EISENHART

For the last couple of months, I've been using a PowerBook 170, the top-of-the-line model of Apple's new notebook Macs, as pretty much my only computer. PB170 #F2142J75703 and I are now bonded to the point of inseparability.

For a lot of us Mac users (and non-Mac users—this machine seems to be attracting unprecedented interest in the DOS world), it's the only computer we'll need for quite some time. And—in the long-deferred realization of a dream we've had since 1984—it goes where we go. I've taken this machine to professional conferences and outdoor concerts. It's great on airplanes. It's great in meetings.

And, thanks to good design and the efforts of multiple third parties, it will do just about anything a desktop Mac will do, except 24-bit graphics. Multimedia and publishing types will still probably be better off with the most souped-up Mac II or Quadra they can get for their page-layout, sound, graphics, and video work; those of us who basically want to take our work/lives with us wherever we go will find the PowerBook the answer to our prayers.

This review particularly concerns the PowerBook 170. There are two other PowerBooks—the 68000-based PB100, which is small, light, and relatively stripped-down (e.g., floppy drive is optional), and the 16MHz 68030-based PB140, which includes the floppy drive and offers an internal faxmodem as an option. While I've yet to hear anything less enthusiastic than yelps of delight from owners of these two machines either, the 170 is probably the machine of greatest interest to power-users (its 68030 is the 25MHz variety) and to those who want to use it as their only Mac.

In future articles we'll be covering some of the hardware and software products coming out for the burgeoning PowerBook market. This review will confine itself to the 170.

The screen is beautiful. Other Mac displays are blurry by comparison.

WHAT'S NOT TO LIKE?

Not even the 170 is perfect, but the gripes are relatively insignificant. To note them quickly and then get on to the good stuff:

•If you use the backlighting on the perfectly lovely Active Matrix LCD screen (the same as the one that was the Mac Portable's best feature), you'll burn out your batteries pretty quickly, usually within two hours. This is not, strictly speaking, Apple's problem, it's a limitation of the current state of battery technology.

The machine and system software (the 170 comes with system 7.0.1 installed, and won't boot with earlier generations of software) provide several useful tools for prolonging battery life, notably a dimmer switch for the screen and a PowerSaver option that slows the processor from 25MHz to 16. In my experience, it is possible, barely, to make the backlighting last for a full day of intermittent note taking, mostly by virtue of turning on the PowerSaver, setting the Sleep function to take over after very short idle periods, and not using Virtual Memory. If you can get by without backlighting, going all day on a single battery charge is quite possible.

There are those who claim that two hours of battery life is adequate for a portable computer. These people are not Mac users.

Most people who plan to run the machine on batteries will want to pick up an extra set of batteries and a charger. For the moment, these are proprietary Apple equipment available only from Apple dealers, not generic products.

On the plus side, the 170 is much better than the Portable in charging quickly and holding a charge while sitting idle and unplugged.

•The aforementioned dimmer switch on the 170 doesn't have much of a range. The lowest backlit setting is still obnoxiously bright in a dark room, and the un-backlit setting is pretty useless in that situation. The Mac Portable's dimmer was software-based and had a much better range, and I'd like to see it incorporated in the 170. (The 100 and 140, which have lower-cost SuperTwist screens instead of Active Matrix LCD, are adjustable from software.)

•The 170 ships in only one configuration: 4MB of RAM, 40MB of hard disk. Most users will probably feel cramped with this little memory and disk, especially if this is their only computer; on the other hand, it's a real boon for vendors of disk-doubling software and PowerBook SIMMs.

As a practical example: In my normal work life on a 4MB SE/30 running 6.0.7, I usually have MicroPhone II, FileMaker Pro, and MacWrite II running under MultiFinder. On the PowerBook, System 7, which is nothing if not a memory hog, refused to let me open all three apps at once. The workaround is to head for the Control Panels and turn on Virtual Memory, which, by a lot of swapping to disk, fools your machine into thinking it's got a lot more RAM than it does—at least till you run out of hard disk. (Which, at 40 megs, comes sooner than you might think, if you're using big programs.)

The pitfall with Virtual Memory, which is otherwise a godsend, is

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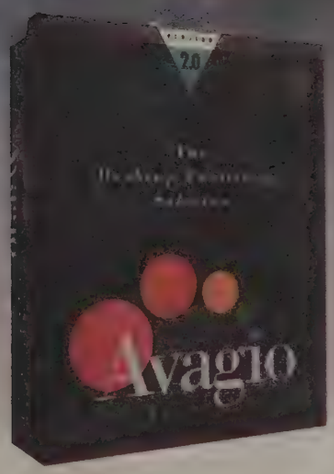

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that it involves a lot of disk access and therefore runs down your battery a lot faster. Apple recommends turning VM off if you're running on batteries.

•With all the hardware packed into its little case, the 170 is not weightless. It's about 7lbs.

However, when I consider the weight of the textbooks I used to haul around in college, this is still a big improvement.

•Generally, the construction of the 170 is remarkably solid. For instance, the screen's hinge is strong enough to keep the display where you put it and, after two months of near-daily use, shows no sign of weakening. And there's a very good latching slider-door for the battery compartment.

Which makes it particularly annoying that the port door (which covers everything from the on-off switch to the phone jack) is attached solely by two flimsy plastic pins *and* is hinged on the bottom, making it prey to a number of hazards, including the sheer weight of the half-dozen cables that could easily be attached.

When the 170 arrived, the boss and I discussed this. "It'll break off in a week," was his assessment. Actually it lasted ten days. And then I, a person rarely confused with Arnold Schwarzenegger, broke it off. In the course of normally opening it.

ON TO THE GOOD STUFF

So it's not perfect. However...

•It's fast and powerful.

•It's a full, uncompromising Mac. Two serial ports; one ADB port so you can attach a keyboard, drawing pad, or other input device; stereo sound in and out (the ubiquitous Apple Microphone is included); a SCSI port (which needs a non-standard cable) for attaching external hard drives or, perhaps, the new adapter box from Radius that lets you attach external monitors. And the marvelous switching power supply that allows you to plug in the machine anyplace in the world (up to 240V, anyway) without frying it. (This used to be standard on all Macs and has been a casualty of cost-cutting in most of Apple's current product line.)

•It includes an internal faxmodem in its standard configuration (2400 baud modem, 9600 baud send-only fax). Modems have never been Apple's strong suit, and this one has the occasional bizarre personality trait (for example, presumably to conform to varying laws worldwide, it will absolutely not let you redial a busy/no-answer number more than ten times. The only fixes seem to

Continued on page 174

The PowerBook's Classic keyboard has one huge advantage for this type of machine—it's much, much quieter than the Standard or Extended. At one seminar, the person next to me commented that he couldn't hear me typing over the sound of his own papers rattling.

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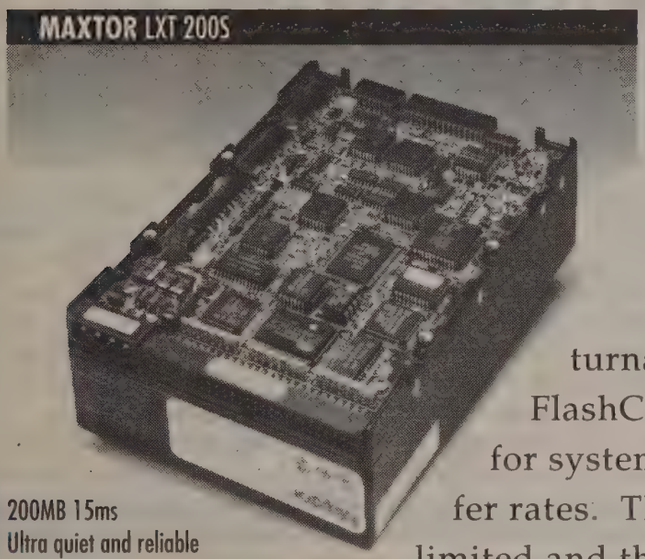

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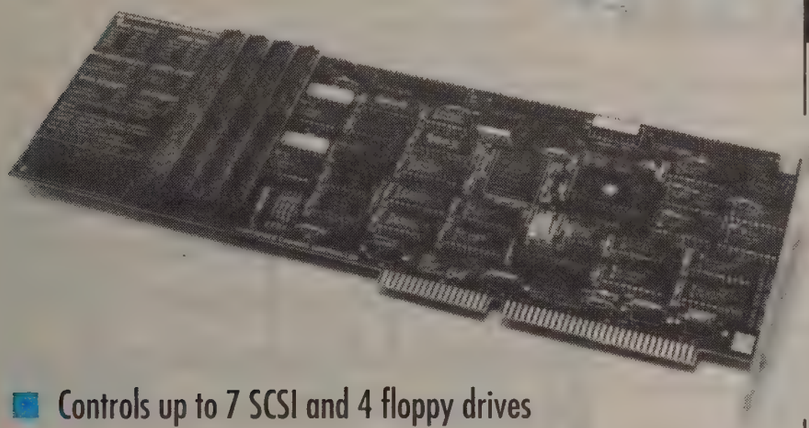

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Getting The Most From Your LAN's Memory

NETROOM Helps Maximize Efficiency Of Heterogeneous Networks

BY WAYNE A. YACCO

A byte just won't buy what it used to any more. In the old days, mainframes only had 4K. If a system had 16K, it was damn near a super computer. You had no idea what you'd ever do with all that memory.

That's not the way it is today, because memory doesn't cost anything like a dollar a byte. Even many kilobytes, more or less, on each of several hundred workstations, only add up to a few inexpensive megabytes.

Nevertheless, there are some bytes that can bring back the old cost of memory with a vengeance. If a new network driver requires just an extra byte or two, the cost could go way, way over a buck a byte. Ask yourself this question. What's the cost to your company if you can't run the applications you need because they won't fit on your workstations?

LOCAL AREA NETWORKS

When it's conventional memory space we're talking about, a byte may be not merely expensive; it may be irreplaceable. Irreplaceable, that is, without the aid of memory management and some extended memory. When that network redirector pushes you beyond the pale, memory management can save the day—in several ways. It can remap upper memory addresses into extended memory. It may alternatively be able to recover built-in shadow RAM as upper memory. Then, it turns those upper-memory addresses into upper-memory blocks (UMBs), a neighborhood where a redirector, other drivers, and system resources can live the good life on far fewer bytes of conventional memory. Sometimes it can also move unused video-buffer space down into bonus conventional memory.

Even on an old 8088-based computer, without extended memory, there are products that can turn an old expanded-memory card into a resource. With a memory manager, application-memory problems are solved.

About the only things you can't do are have as much space in UMBs as you do in DOS, or continue to benefit from a memory manager once Windows starts in enhanced mode. Right?

Get real. I'm about to describe the miracle that lets you do both.

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NETROOM

NETROOM isn't as well known as Helix's earlier product, HEADROOM (a terminate-and-stay-resident program manager), but it's got some tricks of its own. Some of the other products in this category let you stuff as much as 211K of resident processes into upper memory blocks. Only NETROOM, though, makes virtual machines (VMs)—similar to the VMs that MS Windows makes—where you can stuff as much as 570K of your resident software.

NETROOM's VM technology, NETSWAP4, works by switching between a couple of different large EMS areas. One area can have your DOS applications in it, the other your drivers and such. The only hitch is a baby glitch that slows things down when the two processes need to communicate with each other. As Helix president Mike Spilo explains, they can only talk to each other by saving messages to a third memory area that can coexist with both virtual machines. (Since the VMs use the same EMS page frame, they can't simultaneously exist with each other.) If you must load over 500K of resident processes, the extra overhead will cost between 10% and 30%, claims Spilo.

Of course, you can have a smaller virtual machine, over the upper memory area, that approximately doubles UMB space without inordinately slowing down tasks in conventional memory. Only a rare transaction between processes in UMBs will cost the extra overhead. That contingency can usually be managed.

Now for part two. When Windows starts in enhanced mode, the first thing it does is take over memory management, and put all varieties into a pool that it allocates as required by the tasks it manages. That control transfer is managed according to protocols in a Microsoft-supplied program called LOADHI.VXD. If you're not developing a memory manager with the very expensive Windows Device Driver Kit (DDK), you've probably never heard of LOADHI.VXD before.

Ask yourself this question. What's the cost to your company if you can't run the applications you need because they won't fit on your workstations?

NETROOM, however, does more than turn over control with it. NETROOM includes a virtual device driver (VxD) that not only runs under Windows, but performs privileged tasks there—it controls instancing of processes and runs NETROOM's virtual machines inside Windows.

And here's where it gets real dark and scary—it lets them communicate with each other. According to Spilo, you can load your redirector high into one VM, and fill nearly the entire conventional space within Windows with DOS applications that will run on your network. Each of these NETROOM VMs runs in a separate Windows DOS session, but the applications can still send and receive network traffic to and from the redirector.

There's another catch. You now have to tell Windows, via its

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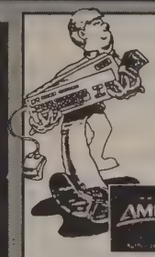

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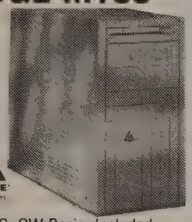

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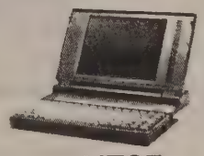

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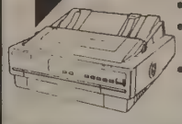

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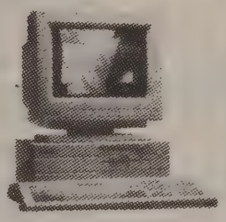

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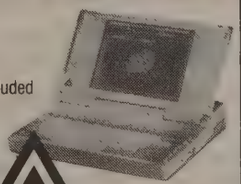

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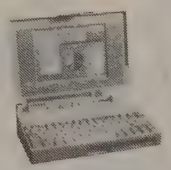

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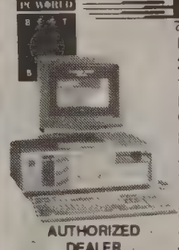

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SETUP program, that the network is not installed. But even though you can't attach network resources with the control panel, your DOS applications can still access them.

What about Windows applications? Here's what the manual says on page 31: "You will still be able to use Windows and NETSWAP4 to print and access network drives, but you cannot run Windows-based network-aware applications. For example, if you run a Windows networking utility, it will tell you that there is no network installed."

MEMORY AND WINDOWS LANS—CASE HISTORY

There's also that other method of memory conservation I mentioned earlier: adding memory from the video buffer to the conventional space. That's the only method that Fred Jennings, a corporate consultant on strategic-information technology, could find to get the memory he needed for four hundred networked Windows users.

Jennings supports the design and use of office technology for staff departments at SmithKline Beecham. A couple of years ago, when Philadelphia-based Smith, Kline, Beckman merged with Britain's Beecham, the two companies were running completely different hardware and software. The combined $8 billion multinational was a company with computers that couldn't talk to each other.

So Jennings is developing a network that will eventually have twenty corporate staff departments in Philadelphia talking with each other, and with their counterparts in Brentford, England. The first step was bringing the stateside departments onto a single four hundred-user OS/2 LAN Server. Another three hundred US-based users will be added this year, and later this year, migration to the system will begin in England as well. However, there was a major obstacle. Crucial applications wouldn't fit into memory with the network drivers.

Jennings initially tried loading redirectors and other code into UMBs with both Qualitas's BlueMAX and Quarterdeck's QEMM. Neither was completely stable in SmithKline's environment: Windows 3.0, served by OS/2 LAN Server, and running on Micro Channel PS/2s (386SX or better) over Token Ring. "If we took one of the components out of the equation, we could recover a lot of conventional memory by loading high with any of those products," says Jennings. Unfortunately, when everything was running together, he couldn't find a manager that made him entirely comfortable. Preliminary research also indicated DOS 5.0 would experience the same problems. (DOS 3.3 is currently in use on the nodes.)

He decided to stop using upper memory and find a solid replacement for HIMEM.SYS that would relocate the graphics portion of the VGA video buffer. "When all three were combined, it wasn't a case of loading anything high. It was a case of simply replacing HIMEM.SYS." Jennings says. He tried NETROOM because a financial institution he'd previously done work for had found HEADROOM to be very reliable. He discovered that "NETROOM was the only one we found that we could use reliably in our environment."

This approach worked for the company's memory-critical line-of-business applications. These are character-based DOS applications developed in-house—with COBOL/CICS, Paradox, and dBASE—that are run under Windows. The system must also support Windows applications, some of them unknown personal applications selected and installed by individuals. The solution was to launch the DOS applications (in exclusive mode) with batch files, then restore the video addresses to the buffer before leaving the batch job and returning to graphics applications. NETROOM's VIDRAM utility did the job to Jennings' satisfaction. Naturally, NETROOM also manages extended and expanded memory outside of Windows, a need SmithKline has for a very few applications. The only complaint Jennings had was a sense that Helix, as a company, wasn't interested enough in his application of NETROOM.

Of course, some LANs require more memory than video alone can supply, and others have problems that aren't a simple matter of memory. Although it isn't using NETSWAP, the New York City School Construction Authority in Long Island City is using NETROOM—both to steal conventional memory from the video buffers and to load drivers into upper memory. LAN manager Jorge Bittar says his 625 workstations are getting 602K after IPX and NETX are loaded on color EGA and VGA Compaqs running DOS 3.31. With the video recovery on monochrome systems, he's getting around 702K for applications. Bittar says his Novell 3.11 network is "working wonderfully. The performance is good and Helix has been very responsive for us in providing technical support for the minor problems we've had."

However, NETROOM's memory recovery wasn't the only reason Bittar selected it for his LAN. He also had a heterogeneous hardware environment that could have required supporting multiple products with some memory managers. "The reason that we selected this product," he says, "is that it allows us to use one product across all the different machines we have, both '286 and '386." ■

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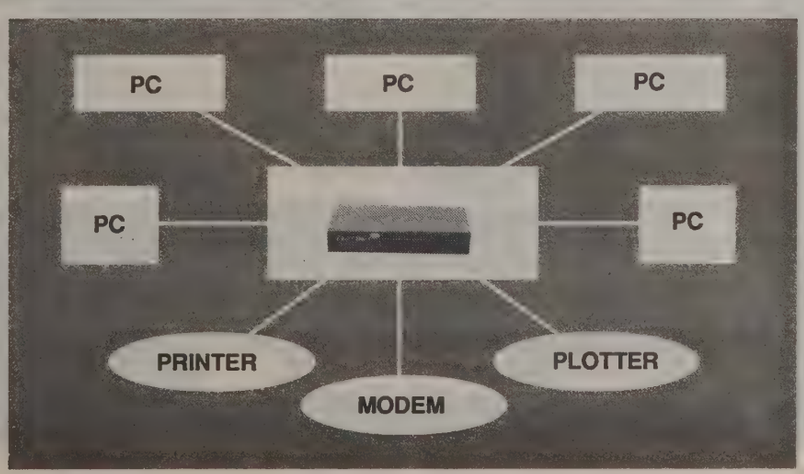

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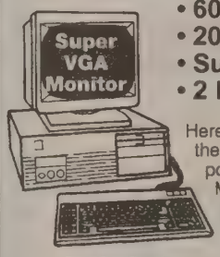

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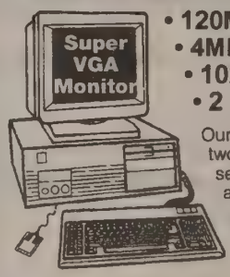

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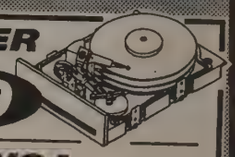

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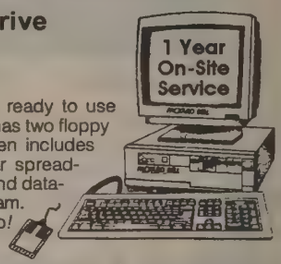

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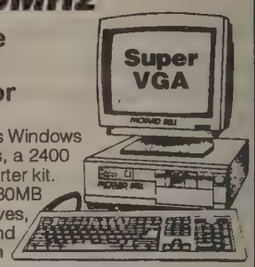

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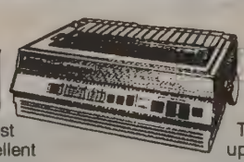

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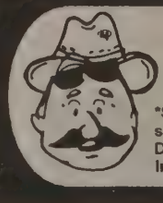

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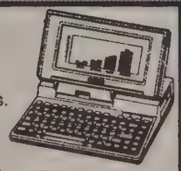

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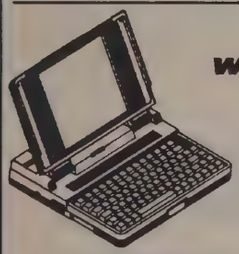

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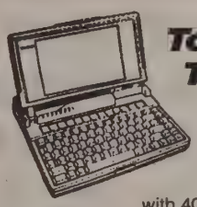

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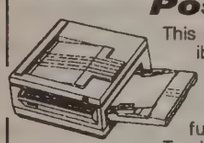

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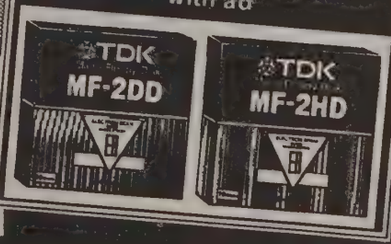

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The Sociology Of UNIX

Form And Function In Business Computing

BY BENNETT FALK

Cognitive dissonance is a terrible thing.

Do you ever stop to think what it means that this column appears in the Business Solutions section of *MicroTimes*? Are there, somewhere, Captains of Industry in grey flannel suits rearranging their portfolios because they've just discovered the "-v" option for grep?

No, probably not. UNIX is not much like Lotus 1-2-3. It is not clear at all how the modern manager or executive would actually use UNIX to solve the problems of doing business. In fact it's difficult to imagine the modern executive using UNIX at all. On the other side of the coin, the actual users of UNIX don't seem particularly interested in becoming executives, modern or otherwise.

Nevertheless, sales of UNIX products account for hundreds of millions of dollars annually, and much of this money is spent by the business community. Clearly a lot of people are finding or trying to find some business advantage in using UNIX.

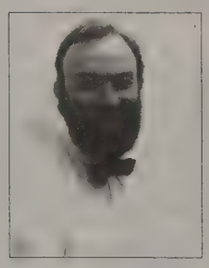
BUSINESS PROBLEMS

Expressed crudely, there are really only two problems any business must solve: increasing revenue and holding down expenses. UNIX, because it is more portable than anything else and because hardware seems to get cheaper from generation to generation, has a healthy reputation for reducing expenses for computerized businesses. No doubt UNIX can also be used to increase revenue, but the bulk of the market is preoccupied with "protecting its software investment" and holding down the cost of its hardware.

UNIX

Of course these things are easier to say than to do. No one has ever held down the cost of anything just by buying and installing a computer running UNIX. It's not even clear that being extremely clever at the keyboard will, by itself, result in any business advantages.

Again, putting the issue crudely, the problem of how to use UNIX profitably in business seems to require a managerial solution, not a technical one. The fundamental issue has to do with how to organize the people involved to make the computer equipment productive.



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UNIX SOCIETY

The division of labor at a typical UNIX site is something like this. There is a community of people who use the computer to get their work done. Other people are responsible for administering the environment in which the users work.

The UNIX system administrator typically oversees the functioning of both the hardware and the operating system, and does what is necessary to protect the user community from disasters of various kinds. This protection usually takes the form of mundane things like maintaining backup copies of all the information on the system.

The system administrator can be either a full-fledged member of the user community or a consultant whose participation in the user community is purely provisional. Usually the system administrator is the point of contact for any technical communications with the companies from which the hardware and software were purchased.

It is unlikely that such a society of users would work exclusively with UNIX itself. There is usually some software application that does the actual work of the business. The application may require maintenance of its own, and there may be a separate administrator for the application.

In a tech support situation, the consumer's demand for an on-site presence of some sort is only rarely motivated by technical concerns. The on-site engineer is a high-tech hostage. The cost of maintaining an on-site presence gives the vendor a powerful incentive to resolve the technical issue as quickly as possible.

As with the PC world, applications may be purchased off the shelf, custom programmed, or some hybrid of the two. Any application that involves custom programming will bring software developers into the community, either as full-fledged members or as consultants.

Development is a relatively small part of the application's life cycle, and when this is complete, developers will either find other applications to work on or move into maintenance or administrative roles for the applications they have built.

Off-the-shelf applications may still need maintenance, and there will be either a designated administrator for the application or the job of administering the application may revert to the system administrator.

Apart from the social roles grounded in some kind of technical competence, there are other roles in the community that depend more on business competence. The executives and managers who fill these roles monitor how well the social and technical system is functioning to achieve the goals of the business, and changes are made as necessary to achieve those goals.

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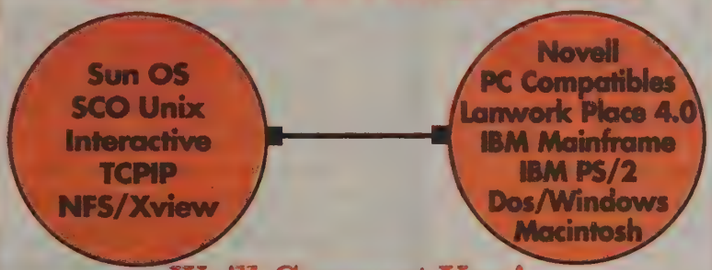

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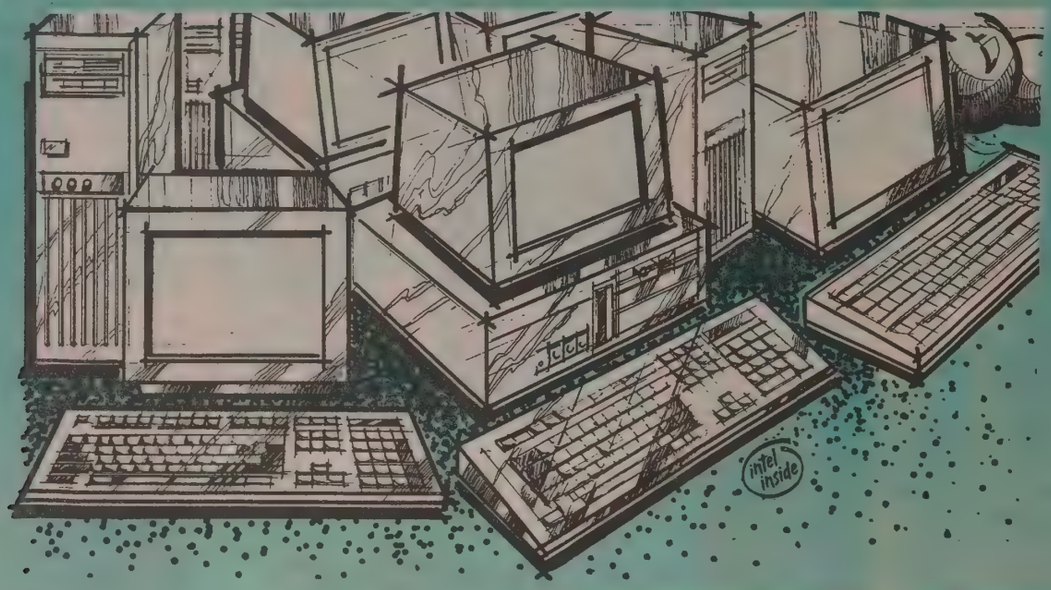

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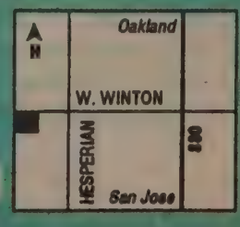

WHEN SOCIETIES COLLIDE

The thoughtful reader will have figured out that a UNIX site can be a complicated thing. The roles described above determine not only how people within a company will interact, but how interactions between companies are structured.

The business of providing technical support is a good example of how this social organization restricts the possibilities for interaction between representatives of different companies.

A user has a technical problem and the consumer company's technical staff reports the problem to the support staff of the vendor.

If the consumer's and vendor's technical representatives cannot solve the problem to their mutual satisfaction, the consumer's technical staff will "escalate" the problem to a manager. Usually a mirror image of this escalation will happen in the vendor's support organization; it is rare that the manager from one company would have any interest in talking to the technical staff of another.

The manager-to-manager conversation that follows is not likely to be about the original technical issue at all. It will instead be a "metadiscussion" about how the technical issues will be resolved.

The object of this discussion is to come up with a plan for resolving the technical issue and providing adequate reassurance to the consumer that the solution will not endanger the consumer's profitability.

The managerial discussion can range very far afield from the original technical issue, and it is not uncommon for an intransigent or dissatisfied manager to demand an engineer on-site to address the problem.

The consumer's demand for an on-site presence of some sort is only rarely motivated by technical concerns. The on-site engineer is unlikely to discover anything that couldn't be discovered from the engineer's usual workplace. Frequently, the on-site engineer is a high-tech hostage. The cost of maintaining an on-site presence gives the vendor a powerful incentive to resolve the technical issue as quickly as possible.

WHERE SOCIAL ORGANIZATION COMES FROM

So far we have pretended that business and technology do not have much to do with each other and that managers who make decisions about how computer resources are to be used can do so without taking into account the technology they are managing. This is not entirely true.

To some extent, the social organization of the people who work with computers is shaped by the capabilities of the computers with which the organization must work. The organization of the people who work with some computerized resource mimics (sometimes intentionally, sometimes not) the structure of the resource.

In general, the UNIX society described above is a middle ground between the social organization of businesses run on personal computers and that of mainframe shops.

The people who work exclusively with single-user, personal computers do not have to adhere to any particular division of labor to make their computers work.

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They appear to be remarkably free. The distinction between "end user" and "system administrator" is wasted on most PC users, because administering the PC is just another part of using it.

The prevalence of "off-the-shelf" applications in the PC world reinforces the solitariness of the personal computer user. The development and maintenance of the application happens somewhere else, away from where the application is used. The result is a flat social organization that is not much like a community at all. Individual members stand or fall on their ability to get answers out of computers controlled exclusively by individual members. The productivity of the society at large will never be more than the sum of the individual members' productivity.

At the opposite end of the scale, the people who work with mainframe computers are not so free. They work with machines whose expense and complexity require a more rigid division of labor. The business of administering the system's disks, for example, is likely to be a full-time job, and the people who do this won't have the time (and may not have the expertise) to administer the CPU or the network interface or any other component of the system.

UNIX-based systems tend to fall between these extremes. Some division of labor at a UNIX site is necessary: There really should be someone responsible for the administration of the system and the applications that run on it. But this is not a necessity because the system as such is complex, but rather because the system is a shared resource. Exactly what shape the division of labor will take can be left to the imagination of the manager. The skills required to manage a UNIX system are easy enough to acquire. Ideally the administrator's role should be something any member of the community is competent to fill.

It's difficult to imagine the modern executive using UNIX at all, and the actual users of UNIX don't seem particularly interested in becoming executives, modern or otherwise. Nevertheless, sales of UNIX products account for hundreds of millions of dollars annually, and much of this money is spent by the business community. Clearly a lot of people are finding or trying to find some business advantage in using UNIX.

THE BUSINESS/TECHNOLOGY BORDERLINE

The boundary that distinguishes between technical and managerial skills is finally where any computer system succeeds or fails in business. Computer systems are not inherently either profitable or unprofitable, and the real measure of a system's success is how easily technical information about the system can be taken into account when managerial decisions must be made. The characteristics of the computer system will influence and shape the managerial decisions that are made; the trick is simply to make these influences explicit so that business decisions can be made self-consciously.

The phrase "Open System" is bandied about a great deal in UNIX circles, usually referring to portability or the ability of products from different vendors to cooperate. Apart from its use as a piece of marketing ballyhoo, however, the notion of an "open" system represents a bias in favor of the dissemination of technical information in a form anyone can understand.

In spite of the UNIX community's great affection for esoterica and for the "guru" metaphor, the idea behind UNIX is that technical information should be freely available and easy to understand. Further, a system that is well understood will be more useful than one that is not, and on this score, UNIX is "manager-friendly" in a way that other operating systems are not. ■

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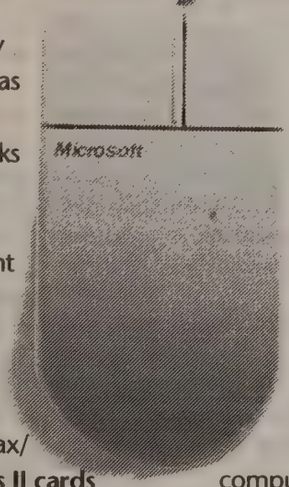

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At Last, NeXT Sells The Dream...To MIS

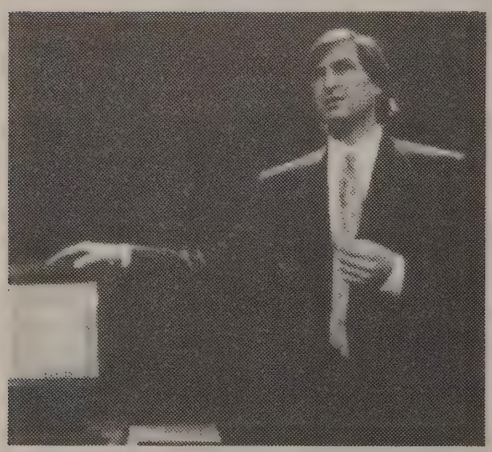
The MicroTimes Interview With Steve Jobs, Part One

BY JOHN PERRY BARLOW

One does not encounter many published interviews with Steve Jobs. Indeed, I've seen his picture on a number of magazine covers, only to find the lead articles within them barren of a single word directly from Himself.

There is a reason for this. While he is not quite yet the Howard Hughes of computing, it is easier to get an audience with the Pope than an interview with Steve Jobs. Nor is there any point in the process when one might feel he's got it nailed.

I can't blame him for being wary of the press. He is a Mick Jagger-class celebrity, and Global Villagers of this magnitude usually go a bit south. You would too if everyone you met focused not on you but on some virtual image, floating vastly above you like a Macy's parade balloon. (As Bob Dylan sang in "Idiot Wind": "People see me all the time and they just can't remember how to act. Their minds are filled with big ideas, images, and distorted facts.")



This problem is exacerbated in Jobs' case by the fact that there really *is* something compellingly, well, different, about him. For the last decade, the workings of his complex personality have been like an Exploratorium exhibit on monomania; highly visible, well-annotated, and endlessly fascinating to gawking legions who have never actually met the guy.

Of course, Jobs would prefer these people look upon his works rather than whatever personal demons might drive him, and those around him, to produce them. After all, no one sits around psychoanalyzing SPARCstations for insights into Bill Joy's mind, nor have I ever heard a portentous word spoken about Ken Olsen's childhood.

But unfortunately for all concerned, it has become difficult to discuss either his companies or their products without talking about Jobs on a fairly personal level. In the past, this was not such a bad thing. What separated Apple from its many early competitors was largely a mystique based on the showier of its Steves. Both the Macintosh and the NeXT originally became objects of obscure desire due to something not unlike a personality cult.

But the mystique which once served him has lately been his principal liability. NeXT appears dominated by true believers whose devotion takes the form of creating products, the greatness of which may be literally a bit insane. But in the process, they devote to the cult a lot of the attention which would better be directed at customers. Dale Carnegie would not dig this. And neither has the marketplace.

Which is a damned shame. In my opinion, the NeXT is simply the most powerful, versatile, and *deep* digital engine you can put on a desk. It is years ahead of its competitors in every area where they are devoting so many of their R&D resources: object-orientation, operating system, ease of programming, graphical interface design, interoperability, connectivity, and stability. It is unbelievably cool.

And that's the problem. A lot of people *haven't* believed it. NeXT, however committed to Steve's dream, has been unable to reveal it convincingly to the rest of the world. And so it is that the world's most elegant computer has only shipped some thirty-six thousand units since 1988.

Lately, as you will read in the following, this has begun to change. Sales have started to pick up. Corporations have discovered NeXTs and are beginning to use them to write the custom applications they once wrote on mainframes and then on the PC.

The swift spread of such news could make a big difference to NeXT. But Jobs' cavalier treatment of the press, however understandable, has earned him ill will of the sort they usually reserve for such as Richard Nixon. Most of the journalists who might otherwise carry the new message are too irritated to give him the satisfaction.

By the time the following conversation took place, I was in a pretty dyspeptic mood myself. Nor was Jobs all that happy with me. Frustrated by the apparent absence of any coherent approach to marketing and sales at NeXT, I had electronically circulated several rants on the subject, elevating temperatures inside and outside NeXT.

He emailed me, telling me that I was "all wet" but failing to elucidate further. I told him that the best way to set me (and other similarly wet individuals) straight would be to give me an interview. To my surprise, he agreed.

Two days before the interview, after I had bought a nonrefundable ticket from Wyoming, he cancelled. Then he changed his mind again and I flew to Redwood City. There he kept me and my "second," *MicroTimes* editor Mary Eisenhart, waiting for forty minutes before he bounced in and told us that he could only spare us twenty of the ninety minutes we'd been promised. But not to worry. He could "talk real fast." (Which he most assuredly can.) As it turned out, he stayed put for nearly an hour, but, by this opening gambit of evasive zigs and zags, he managed to put me irretrievably off balance.

So there was little I could do to prevent him from "playing his tapes" at me. This was unfortunate, because much of what he says about changing NeXT fortunes is more plausible than it may sound in the following...or would have sounded if he'd been speaking less automatically.

I think he has rediscovered a huge market: Son of dBASE, custom workstation apps for MIS. Like Jobs, I imagine small groups of networked guerrillas roaming the corporate steppes of Cyberspace, continuously conjuring up new tools of the moment from their NeXTs. While he may be, as usual, dangerously ahead of the curve, Steve Jobs is once again onto something. I'm not surprised.

Whatever his personal wrinkles, I think this guy really *is* a genius. Difficult and elusive, there remains something quite winsome about Steve Jobs. He can make you nuts, but this is not entirely unpleasant.

The interview is printed in two parts, the second to appear next month. In the first part, we primarily discuss NeXT's brand-new marketing strategy, arguably the first credible one it has ever had. While there may be some perils to their new approach, I do believe that they are at last about to move a lot of boxes.

Radiating energy, Jobs plants one bobbing knee on a chair across from me and begins:

You want to talk about our marketing strategy? Good. I want to talk about that too, since you're confused.

I want to start out by telling you that I'm on your side.

Oh, I know that. Even if you're kicking us in the butt, I know it's because you want us to win.

But I have questions that I get asked all the time, and rather than putting myself in the position of trying to second-guess what your answers would be...

This interview will be completed in NeXT month's issue. Jobs will discuss chip choices, operating systems, standardization, multimedia, and what he considers to be his personal mission in life.

If you'd like to hear him in person, he will be delivering the Keynote Address at NeXTworld Expo at the San Francisco Civic Center on January 22, 1991.

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The only thing I would say is... since we don't have the largest marketing budgets in the world to run advertisements, there are a lot of times when we learn something, and we shift our strategy, and it actually will be working in the marketplace, but there's a lag of several months before people catch on. So sometimes people's impressions are a little out of date with what's really going on. We can use this as an opportunity, I can tell you what we think's going on.

Well, all right, since we're already there, let's talk about current marketing strategy at NeXT.

Maybe the best way to explain it is with an analogy I've used before that seemed to work: Believe it or not, when we did the Macintosh, we never anticipated desktop publishing. We didn't. We put the bitmapped display in place, we put the printer in place, but we never anticipated PageMaker.

We weren't smart enough. But we were smart enough to see it happening nine or twelve months later. We seized that, and we changed our whole business strategy to focus on desktop publishing, even though the Mac was quite good at other things too. Desktop publishing became the Trojan Horse that got Macs into corporate America, and it was successful.

Jump to when we created the NeXT computer. When we created our computer, we did not initially view it as a workstation because of the blinders of our history. We viewed it as more of a PC on steroids, if you will, than a workstation. Maybe more important, even—when we created NeXTstep, the goal was to make it be five to ten times faster to create applications on NeXTstep than anything else.

[Someone once compared conversing with Steve Jobs to sipping from a fire hose. At this point, I began to see what they meant.]

That was clear at the time.

That was clear, and I think we succeeded at that. But the target customer for NeXTstep, the beneficiary, was the shrink-wrap third-party software developer. The Lotuses, the WordPerfects, the Adobes. And indeed it worked. We have a joke: The good news is we have the third-best suite of productivity apps in the world. The bad news is we have the third-best suite of productivity apps in the world. *[laughs]*

But we really have an incredible investment in software. And tons of packages shipping, two hundred and something of them now. Much more so than any other workstation. We blow Sun's productivity software suite away. Even if you compare us to the PC and the Mac, we now actually have best-of-breed apps in most categories. We have the best version of WordPerfect, and yet compatible with all the others. We have the best version of Adobe Illustrator. We have the best version of this and that. With Concurrence we have the best presentation program now. So we're not doing bad.

You have other applications that don't exist anywhere, like Diagram, which is an extraordinary piece of work.

Or like the Boss Logic stuff.

So, anyway, it basically worked...

But an interesting thing happened. When we started selling a lot of our second-generation product, the NeXTstations, this year, we turned around in June and said, "Who's buying all these?" Because remember last year we were 80% higher education. When we turned around in June, the majority of our customers were large- and medium-sized corporations.

And we said, "Why are they buying it?" We went and asked them, and it was very clear. They'd discovered NeXTstep. And they were using it to write their in-house mission-critical custom apps five to ten times faster.

This was a discovery, not a plan? Really?

Oh yeah, absolutely. It was not a planned thing.

The concept that all big companies have a ton of mission-critical custom apps they want to write—that they're all downsizing off of mainframes and that they all want to write them on these desktop platforms now—was something that never occurred to us.

An art director at an ad agency is writing a custom NeXTstep app that logs onto the SABRE system automatically, grabs the data, typesets it automatically into the app, sends the different schedules onto the network around the country, and prints them locally at the local cities.

Well, gee, there's been a hell of a dBASE market for a long time now...

Right. Well, when we started thinking about it, within a month it became obvious. People used to write custom apps on their mainframes and their minis. Along came the personal computer, and rather than wait three years for your MIS department to write something, you could write a little bit of it yourself, using 1-2-3 macros and dBASE. The problem was that kind of ran out of gas a few years ago, topped out. And one could ask the question now, "What do you do now to get competitive advantage when all your competitors have PCs on their desk too, and they can buy the same shrink-wrapped stuff you can?"

The answer is to write a mission-critical custom app!

We weren't smart enough to see this. Our customers taught us this. We have redone our entire marketing strategy this summer, the August-September timeframe, to focus on mission-critical custom apps. And that is our Trojan Horse that is getting us into corporate America.

Now when we first explained this to our third-party application developers, their initial reaction was to freak. They thought, "Oh my God, you're abandoning productivity!" Turned out that it couldn't have been further from the truth. What happens is that we're now selling NeXT computers in clumps—the smallest clumps are usually like twenty-five, the largest clumps, we just closed our first order for over a thousand systems. And we have a lot of clumps that we sold for hundreds of systems, one to five hundred. We get orders for one to five hundred systems now, routinely.

Well, guess what? All these customers want a bag of productivity apps to go on those several hundred systems, which can interoperate with their custom apps. We've got one customer down in LA who's buying a thousand copies of about six or seven apps. You should see all the developers lining up—"What do you need to do to make mine one of them?" So our app developers have been more successful in the last six months than they've ever been. Jumping out of this Trojan Horse, if you will, once we get it in there.

What we've seen is that even though our apps may be 50%, even 100%, better than what you can get on a PC, you need something that's even more of a compelling advantage to get people to switch. Being twice as good ain't good enough.

People are willing to go on dancing with the devil they know for a long time, or DOS would not still be the standard.

Right. And they're willing to listen to how this other company's going to have this in two years, why not wait, blah-blah-blah.

So what we found is that with mission-critical custom apps, we're not 50% or 100% better, we're like 1000% better. And it's over that threshold where somebody's willing to take a gamble on us as a young company, because we're five to ten times better. And that's what's getting us into these big accounts, and that's who's then buying all the productivity software.

So our business has flip-flopped. We're only about 25% higher ed now. We're 75% commercial and government.

Okay, but I guess I still have a couple of concerns here. I agree with you that this is a good way to go, it makes a lot of sense, and it has the advantage of being a Trojan Horse that heads in through the front office rather than the art department.

That's right. We're getting called in by the CIOs of these companies. Which is a new experience. *[laughs]*

Right. But I'm trying to figure out where that's going to leave the individual customer. There are a lot of people who are disaffected with IBM's latest Macintosh, and are really anx-

Continued on page 178

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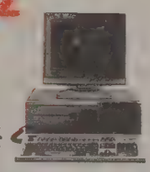

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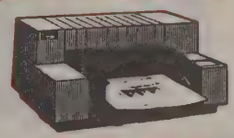

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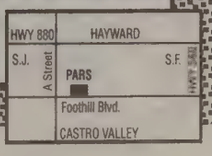

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AST Bravo Computers

Standard Configuration on all Models

- ➤ i486, 25MHz processor (Bravo 486/25) 386SX, 20MHz processor (Bravo 386SX/20) 286, 16MHz processor (Bravo 286/16)
- ➤ 3.5", 1.44MB Floppy
- ➤ Integrated Super VGA graphics
- ➤ Five 16-bit industry standard expansion slots
- ➤ Four drive bays (2-5.25" external; 2-3.5" internal)
- ➤ Two serial, one parallel, one mouse port
- ➤ Chassis lock
- ➤ Software

Bravo 486/25

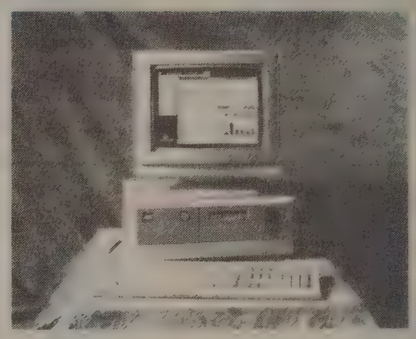
- • i486, 25MHz Processor
- • 2MB RAM (Up to 16MB)

Bravo 386SX/20

- • 386SX, 20MHz Processor
- • 2MB RAM (Up to 16MB)

Bravo 286/16

- • 286, 16MHz Processor
- • 1MB RAM (Up to 16MB)



AST Premium® II Computers

PREMIUM II 486/33

Standard Configurations

- ➤ Intel i486DX, 33MHz processor
- ➤ 4MB RAM (expandable to 16MB on processor board; 80MB system total)

PREMIUM II 486SX/20

Standard Configurations

- ➤ Intel i486SX, 20MHz processor
- ➤ 4MB RAM (expandable to 16MB on processor board; 80MB system total)

PREMIUM II 386/33

Standard Configurations

- ➤ Intel 386DX, 33MHz processor
- ➤ 4MB RAM (expandable to 16MB on processor board; 80MB system total)
- ➤ 16KB Intel Smart Cache

Standard Configurations on All Models

- ➤ Integrated 16-bit Super VGA graphics adapter
- ➤ Six total industry standard expansion slots
  - • Three Cupid-32/16/8-bit slots (one used by processor board)
  - • Two 16/8-bit slots
  - • On 8-bit slot
- ➤ Five drive bays (One-1/3 height external; Two-1/2 height external; Two-3.5" internal)
- ➤ Mouse port
- ➤ One parallel port, two serial ports
- ➤ Expanded memory manager (LIM EMS 4.0)
- ➤ Disk caching software
- ➤ RAM disk utility
- ➤ Print buffer

AST® COMPUTERS

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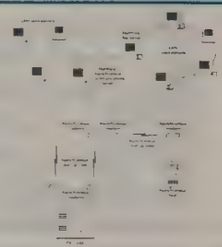

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- ☛ Available in 20 - 100 - 250 user versions

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- ☛ Supports file size up to 4GB

- ☛ Supports volume and files span up to 1024 drives
- ☛ Interoperates with NetWare 2.X
- ☛ Includes NetWare remote management facility
- ☛ Provides developers with tools to write applications
- ☛ Supports extended and expanded memory workstations
- ☛ Fully compatible with Microsoft Windows
- ☛ Supports workstations running DOS 3.X 4.X 5.0
- ☛ Includes transaction tracking system
- ☛ Supports disk duplexing and mirroring
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COMPAQ LTE 386s/20

Compaq Authorized Dealer

- 80386SX/20 Processor
- 30MB/60MB H/D
- 2MB RAM (Up to 10MB)
- Edgelit VGA 32 shade
- 1.44MB Floppy
- 1 S/1 P/VGA/Numeric Keypad

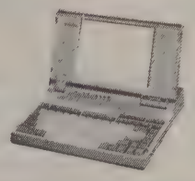
TOSHIBA T2200SX

New Arrival

- 20MHz, 386™SX processor
- 40MB or 60MB hard drive
- 1.44MB diskette drive
- 2MB RAM expandable to 10MB
- VGA display with 16 gray scales
- 5.5 lbs.

TOSHIBA T2000SXe

In Stock



- 80386™SX/20
- 2MB RAM, up to 10MB
- 40/60MB Hard Disk w/19ms
- 1.44MB, 3.5 floppy drive
- VGA Video
- MS-DOS® 4.01

New Arrival AST Premium® Exec™ 386SX/25C

- 386SX/25 MHz
- 3.5", 1.44MB diskette drive
- 60MB or 80MB HD
- 4MB RAM (up to 8MB)
- VGA, EGA, CGA, & MDA compatible
- 16 colors at 640x480
- 256 colors at 320x200
- 64 gray shades
- 800x600 Super VGA on ext. monitor
- LCD & external monitor offer simultaneous operation

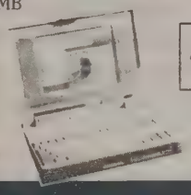
Dimensions:

- System unit: 11.4"W x 2.30" H x 9" D (28.9cm W x 5.8 cm H x 22.8 cm D)
- Weight: 7.5 pounds (3.4 kg)

AST Authorized System Reseller

AST Premium® Exec™ 386SX/25

- 4MB RAM expandable to 8MB
- 1.44MB Floppy Drive
- 60/80MB Hard Drive
- VGA output 32 shades of gray
- DOS 5.0
- 1 Serial/1 Parallel port



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NEC UltraLite™ 386SX-20MHz

- Standard 386SX-20MHz
- 40/60MB Hard Drive
- VGA-16 levels of grey
- Parallel/Serial/VGA/SCSI ports (New)
- Standard with Microsoft Windows 3.0
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New Arrival

NEC UltraLite™ 286F

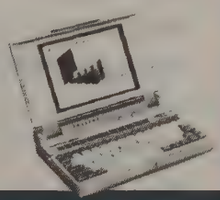
In Stock
On Demo

- 80C286/12MHz
- 1MB RAM, exp. to 2 or 5MB
- 20MB Hard Disk Drive
- Internal 3.5" floppy drive

ZENITH data systems — MastersPort 386SX

Groupe Bull

In Stock



- 386SX/20 MHz
- 2MB RAM
- Backlit LCD VGA
- 60MB Hard Disk
- 6.6 lbs.

ZENITH data systems — MastersPort 386SL

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On Demo

- 386SL-20/5/0MHz
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- Standby/Resume
- Rest/Resume
- Panic Save
- Unattended Communication

TravelMate 2000

TEXAS INSTRUMENTS

- 80C286-6/7-16/12 MHz
- 1MB RAM (up to 3MB)
- 20/40MB HD
- LCD VGA display, 16 shades
- 1 serial/1 parallel port
- DOS 4.01, laplink, battery watch
- 4.4 lbs, 8.5" x 11" . 1.4"

TravelMate 3000

TEXAS INSTRUMENTS

- 80386SX/8/10/20 MHz
- 2MB RAM (up to 6MB)
- 40/60/80MB HD
- 1.44/720K Floppy
- LCD VGA, 32 shades
- 1S/1P/1 VGA 1/Mouse/Expansion Bus
- DOS 4.01, Battery watch
- 5.7 lbs, 8.5" x 11" x1.8"

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Preview

First International NeXTWORLD Expo

San Francisco Civic Auditorium
January 22–24, 1992

NeXTWORLD Expo, a combined user conference, exposition, and international developers conference, is expected to draw more than five thousand attendees to the San Francisco Civic Auditorium January 22 through 24, 1992. *NeXTWORLD* Magazine is sponsoring the product exposition and user conference, which will be held the first two days; NeXT Computer, Inc. is sponsoring the three-day international developers conference; and NOIR is sponsoring a user group meeting on January 24 only.

Steven P. Jobs, president and CEO of NeXT Computer, Inc., will open NeXTWORLD Expo on January 22 with a keynote presentation outlining future technology directions for NeXT, highlighting software strategies for the decade ahead.

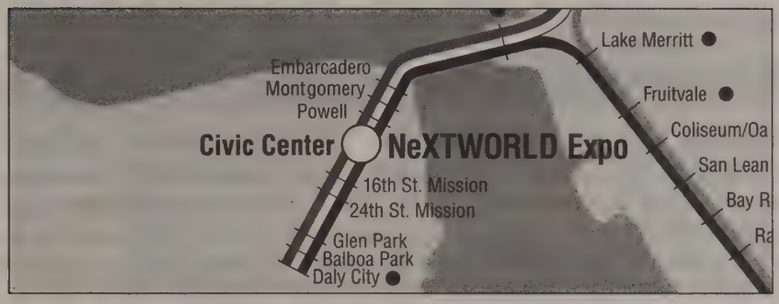
Advanced registered attendance will be $25 for the exposition and keynote sessions and $95 for the full user conference. The NeXT developers conference, hosted by NeXT Computer, Inc., will cost $395 for advanced registration. Attendance at the user group conference, being held January 24, is free to registered attendees.

Those seeking more information on registering for NeXTWORLD Expo can call World Expo Corporation at (508)872-0900. Companies interested in exhibiting at the event should fax inquiries, as soon as possible, to World Expo Corporation at (508)872-8237.

Exhibitors:

42 Software
Adamation
Addison-Wesley Publishing Co.
Adobe Systems Incorporated
Altsys Corporation
Appsoft, Inc.
Ariel Corporation
Bacchus Inc.
Boss Logic
Canon Japan
Canon U.S.A.
Coconut Computing Inc.
Computrend
Digital Instruments Technology Inc.
DisCopy Labs
Ensuing Technologies
ESL Incorporated
Highland Software
HSD Microcomputer U.S., Inc.
i.link
Imagine Software
Insignia Solutions
IP Design
Lighthouse Design, Ltd.
Lotus Development Corp.
Metaresearch Inc.
Metro Soft
MicroTimes
Neuron Inc.
NeXT Computer, Inc.
NeXT Europe
NeXTWORLD
Objective Technologies Inc.
Oce Graphics
PenCom
PLI
Professional Software
Quest Inc.
RightBrain Software
Sarrus Software Inc.
Second Glance
Softlog
Software Ventures
Stone Design
Technology Management
Tecor Inc.
TMS Enterprises
Toshiba America/TAEC Inc.
White Pine Software
WordPerfect Corporation

NeXT STOP.



NeXTWORLD EXPO, SAN FRANCISCO, JANUARY 22-24.

Get ready for the first-ever gathering of the worldwide NeXT™ community, sponsored by *NeXTWORLD* magazine.

NeXTWORLD™ Expo, takes place at Civic Auditorium and Brooks Hall, 99 Grove Street, San Francisco, from January 22 to 24, 1992.

It's an educational Users Conference. It's a NeXT product exposition. It's an international Developers Conference. It's a global User Group Meeting. NeXTWORLD Expo is all this and more in one place, under one roof.

Visit scores of product exhibits. Try your hand at the latest in NeXT hardware, software, and peripherals. Meet with leading-edge users and resellers. And learn from people who are already putting the NeXT computer to work in business, government, and education.

Attend stimulating general sessions, hands-on tutorials, and in-depth panel discussions run by industry leaders like Stewart Alsop, Vicki Brown, and Jonathan Seybold.

Hear a keynote address by Steve Jobs, President and CEO of NeXT Computer, Inc., who'll have some big news to announce.

Take part in the first international Developers Conference, sponsored by NeXT Computer, Inc. And trade tips and techniques with fellow NeXT users at the first global User Group Meeting—free to anyone who registers for any part of the event.

Whether you're already a NeXT user or about to become one, your NeXT stop is NeXTWORLD Expo—the first event for the NeXT generation.

Exhibits-only admission is just $40 at the door.

Here's a partial NeXTWORLD Expo exhibitor list: 42 Software • Adamation • Addison-Wesley Publishing Co. • Adobe Systems Incorporated • Altsys Corporation • Appsoft • Ariel Corporation • Atherton Software Works • Bacchus Inc. • BaNG • Boss Logic, Inc. • Canon Inc. • Coconut Computing, Inc. • *Computerworld* • Computrend • Digital Instrumentation Technology, Inc. • DisCopy Labs • Ensuing Technologies • ESL Inc. • Highland Software • HSD Microcomputer • i•link GmbH • Imagine Multimedia • Insight Software • Insignia Solutions Inc. • IP Design • Lighthouse Design, Ltd. • Lotus Development Corporation • Marble Associates • Metaresearch, Inc. • Metrosoft • Microtech International • *Micro Times* • NeXT Computer, Inc. • *NeXTWORLD* magazine • Neuron, Inc. • Objective Technologies, Inc. • Océ Graphics • PenCom Software • PLI • Professional Software • Pyramid Technology • Quest, Inc. • Sarrus Software, Inc. • Second Glance • RightBrain Software • Softlog, SA • Software Ventures Corp. • Stone Design Corp. • Talus Corp. • Technology Management • Tecor, Inc. • tms GmbH • Toshiba America • White Pine Software • Wolfram Research, Inc. • WordPerfect Corp.

WHAT, WHERE, AND WHEN AT NEXTWORLD EXPO

EXPOSITION	Wednesday	January 22	11:30 a.m. - 7:00 p.m.
	Thursday	January 23	8:30 a.m. - 6:00 p.m.
KEYNOTE ADDRESSES	Wednesday	January 22	10:30 a.m. - 12:00 p.m.
	Thursday	January 23	9:00 a.m. - 10:30 a.m.
USERS CONFERENCE	Wednesday	January 22	8:00 a.m. - 5:00 p.m.
	Thursday	January 23	8:00 a.m. - 5:00 p.m.
DEVELOPERS CONFERENCE	Wednesday	January 22	11:00 a.m. - 5:00 p.m.
	Thursday	January 23	11:00 a.m. - 5:00 p.m.
	Friday	January 24	9:00 a.m. - 3:00 p.m.
USER GROUP MEETING	Friday	January 24	8:00 a.m. - 5:15 p.m.

For more information, call (508) 872-0900.

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NeXTWORLD EXPO

MAN OF THE YEAR:

Philippe Kahn

President, CEO, and Chairman, Borland International

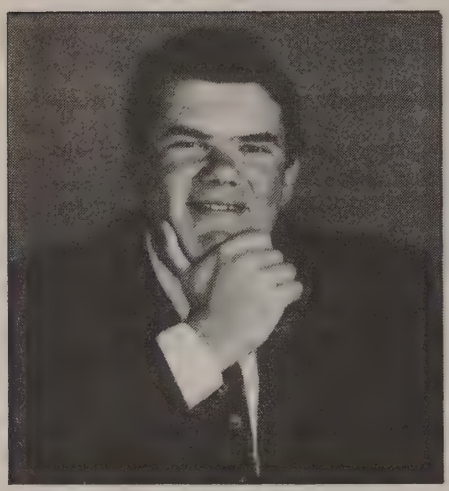
A Little Barbarism Is Good For The Industry

BY MARY EISENHART

"They say we're the barbarians of software," says Philippe Kahn.

He's talking to a roomful of analysts, venture capitalists, and other industry types, gathered at the Personal Computer Outlook conference in December to hear what he's got to say about the future of Borland, now that it's acquired and absorbed Ashton-Tate. He talks about the lean, mean Borland organization, its obsession with technical excellence, the ongoing interest in finding something the competition's not working on and building on it. How he's spent the few months since the acquisition became final consolidating the two companies.

But he admits that sometimes the computer industry sees him and his company as barbarians, and that this sometimes gets in the way of their being taken seriously.



"But," he says, "the barbarians were pretty good people. They just had a lousy PR organization." Consider, he reminds the audience, that about the time the barbarians showed up at the gates of Rome, the Romans were busily throwing Christians to the lions, having orgies, murdering their political enemies, and generally being pretty disagreeable folks. And along come some nice family-oriented, living-by-the-warrior-code Visigoths and their pals, and guess who gets called barbarians...

It gets a laugh, as it's meant to. But it also makes a point.

Much of the computer industry seems to spend a disproportionate amount of its resources in long-running and morale-destroying lawsuits. Customer support is more and more often a casualty of declining profit margins. New releases of software often ship in a buggy state, late, or not at all.

And on the other hand, there's Borland, now one of the largest software companies in the world and an increasingly formidable rival to Lotus and Microsoft. Not, perhaps, your most buttoned-down company, but one that seems to have all the right secret weapons in the battle for world domination. Excellent, well-targeted products. Happy employees determined to make them even better. Happy customers who rated Borland #1 in customer satisfaction on a recent J.D. Power survey. And a president whose pride and integrity are on the line with every product.

We think Kahn's doing it right, and we're delighted to name him Man of the Year for 1991. And in honor of the occasion, we asked him a few questions by way of updating his comments on the Ashton-Tate acquisition (see cover story, issue #86, for that interview).

Now that the acquisition of Ashton-Tate's been completed, what benefits has Borland realized?

There are two reasons why Borland bought Ashton-Tate.

First, we wanted to strengthen our International infrastructure immediately. That's a huge benefit to us in the mid- and long term. And secondly, we were very interested in a technology that had been developed by a company that Ashton Tate had just acquired: InterBase. Two very compelling reasons.

Part of the post-acquisition process has been the establishment of dBASE as an open standard. What, precisely, is meant by the term in this case?

As we always said, this means that we are very pleased to let third-party companies build products that make use of the dBASE command set. However, of course, dBASE is a registered trademark and dBASE is a copyrighted product. As you know, Borland has a strong stance for innovation. Unlike Lotus, we don't believe in litigation as a way to gain a business advantage. We're technology driven.

What bearing does that have on the Quattro/Lotus issue?

We are holding a position on principle in the Lotus case. Lotus basically is attempting to restrict the user's choices. We are making a strong stance, not only because it's the best thing for the PC community but also because all of us agree that that's what protection of intellectual property is for: to promote innovation.

We're delighted that the Department of Justice has made its views known in favor of technological innovation. As you know, the Department of Justice has filed on behalf of the US Copyright Office a "friend of the court" brief in Lotus vs. Borland. The brief states that menu items are not copyrightable, cites the same cases we've been citing to the court, and provides the court with copies of long-established internal policies of the Copyright Office to further support the point.

This is a bit technical, but the bottom line is that we hope that Lotus soon comes to the realization that it's technology and innovation that have to drive our industry forward.

Since Macintosh has never been a particularly comfortable fit at Borland, where do the Mac products, including dBASE Mac, fit in your current plans? Also, what's happening with Framework?

We have been talking to Apple about potential plans for future Mac products, but no plans have been announced. We will continue to ship and support Framework and dBASE Mac. There will be an upgrade path for Framework customers—we are working on a Windows integrated application which we believe will be attractive to Framework users.

What is Borland's strategy with regard to UNIX-based and other large-computer database systems?

We're always investigating new operating systems, but have no plans to announce now. Of course, Interbase and dBASE are on the UNIX platform now. Paradox and SQL Link give customers access to the most popular data servers.

Given Borland's exemplary record for keeping its customers happy, do you anticipate any problems supporting all the new products and customers you've acquired as a result of the merger?

My job is precisely to anticipate problems. So I have.

Basically our goal is to release a nice upgrade to dBASE IV, namely 1.2, which greatly improves performance, adds mouse support, etc., right away. That will help customers.

But the real goodies come with the Paradox for Windows and dBASE for Windows that you'll see in the first part of 1992. They are both brand new code bases, all based on Borland object-oriented technology. Now users won't have to choose between Paradox and dBASE: They are both fully inter-operable! ■

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5 Years Labor & 1 Years Parts Warranty On All Systems

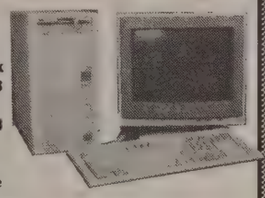
FREE Software Installation With System Purchase
We Do Custom Systems Configuration

486-33MHz w/64KB Cache SVGA 120MB HD

- *Intel 486-33MHz
- *64KB WriteBack Cache (up to 256KB)
- *4MB DRAM (up to 32MB)
- *120MB 19ms IDE Hard Disk
- *SAMSUNG SVGA 1024x768 0.28mm Dot Pitch Monitor
- *Trident 8900 1MB 1024x768 Super VGA Graphic Card
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 parallel & 1 game port
- *Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0

Complete System $ 1899

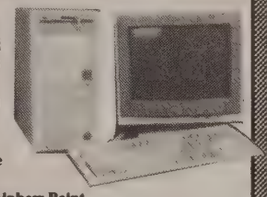
386-40MHz w/64KB Cache SVGA 105MB HD



- *AMD 386-40MHz
- *64KB WriteBack Cache (up to 256KB)
- *4MB DRAM (up to 32MB)
- *105MB 19ms IDE Hard Disk
- *SAMSUNG SVGA 1024x768 0.28mm Dot Pitch Monitor
- *Trident 8900 1MB 1024x768 Super VGA Graphic Card
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0

Complete System $ 1519

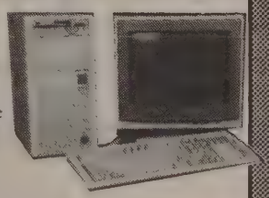
386-33MHz w/64KB Cache SVGA 105MB HD



- *Intel 386-33MHz
- *64KB WriteBack Cache (up to 256KB)
- *4MB DRAM (up to 32MB)
- *105MB 19ms IDE Hard Disk
- *SAMSUNG SVGA 1024x768 0.28mm Dot Pitch Monitor
- *Trident 8900 1MB 1024x768 Super VGA Graphic Card
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0

Complete System $1459

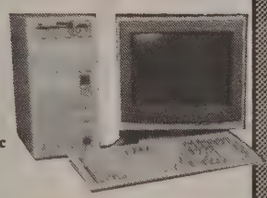
386-25MHz SVGA 80MB HD



- *Intel 386-25MHz
- *2MB DRAM (up to 8MB)
- *80MB 19ms IDE Hard Disk
- *SVGA 1024x768 0.28mm Dot Pitch Color Monitor
- *Super VGA 1024x768 Graphic Card w/512KB
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 Parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0

Complete System $1249

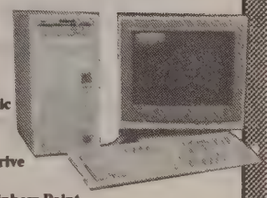
386SX-25MHz w/32K Cache SVGA 40MB HD



- *AMD 386SX-25MHz
- *2MB DRAM (up to 16MB)
- *32KB Cache Memory (up to 64KB)
- *40MB 23ms IDE Hard Disk
- *SVGA 1024x768 0.28mm Dot Pitch Color Monitor
- *Super VGA 1024x768 Graphic Card w/512KB
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0

Complete System $1129

386SX-25MHz SVGA 40MB HD



- *AMD 386SX-25MHz
- *1MB DRAM (up to 8MB)
- *40MB 23ms IDE Hard Disk
- *SVGA 1024x768 0.28mm Dot Pitch Color Monitor
- *Super VGA 1024x768 Graphic Card w/512KB
- *TEAC 1.2MB Floppy Drive OR SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dexxa Mouse w/Rainbow Paint
- *2 serials, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply

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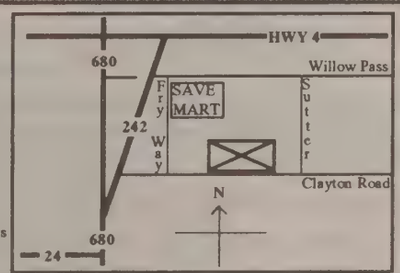

THE 5th ANNUAL MICROTIMES

100

Our Yearly List Of Industry Leaders

"It's hard not to notice that the worldwide computer industry is in transition. Competitors are acquiring other competitors, restructuring, reporting losses, and laying off employees. Computer companies throughout the world have announced major changes in strategy or have formed new alliances."

—Scott McNealy, Sun Microsystems Annual Report

Not unlike 1990, 1991 was a turbulent year for the computer industry as the economy soured, markets changed, and long-time alliances fell apart.

Many of the individuals on this year's MicroTimes 100 list got there by either bucking these trends or by setting a few of their own. You'll find some recurring themes here: strategic alliances, the increasing importance of the consumer market for computers, the ability of new and old companies to adjust to rapidly changing operating conditions.

It was a year in which some established companies—notably Ashton-Tate—simply ceased to exist. It was also a year of innovations and startups in areas from multimedia to pen-based computing. Here's a look at some of the people who made it all happen.

Sheldon Adelson

Chairman and CEO
The Interface Group; Las Vegas Sands, Inc.

The entrepreneurial Adelson bought a magazine called *Data Communications User* in 1971, which got him to thinking about the similarities between trade press and trade shows. Several smaller shows led to the creation, in 1979, of COMDEX, which became the fastest-growing trade show in the United States. COMDEX has led not only to a host of other shows (1991 saw the launch of Windows World, and PC/North America debuts in 1992), but also to the acquisition of the Sands Hotel and five L-1011 jets, the better to accommodate the needs of hordes of trade show-goers.

John Akers

Chairman
IBM

It's been the less-than-enviable lot of Akers to run IBM at a time of rapid and chaotic change in the industry, a period in which the business truths that had made Big Blue the successful monolith it's been for decades have suddenly turned out to be wrong. (For one startling example, IBM entered into an unprecedented alliance with Apple to develop future operating systems and multimedia products.) In the course of the year, Akers has made headlines with his public discussions of the organization's complacency and its adverse effect on IBM's competitiveness; he's also castigated the US government's short-sighted policy in imposing high tariffs on active-matrix LCD screens, a policy which will result in IBM following other vendors who have already moved their portable computer manufacturing facilities offshore, with attendant loss of jobs in the US. Most recently, he's presiding over the most drastic reorganization in IBM's history (see Industry Insight, this issue), a measure intended to create a host of smaller, more autonomous, and more competitive Baby Blue companies.

Alan Ashton

President

Bruce Bastian

Chairman

Pete Peterson

Executive Vice President
WordPerfect

Ashton and his former student Bastian founded WordPerfect in 1977; Peterson came along a few years later. The three men currently share most of the company's ownership and guidance: Bastian develops its growing international markets, Ashton oversees its product development, and Peterson conducts most of its day-to-day business operations.

In the last year, they've substantially strengthened their flagship word processor's position as a multiplatform standard, shipping a new improved version for Macintosh, another for the Poqet PC, the visually spectacular NeXT version, and the long-awaited WordPerfect for Windows. They're currently at work on adding Russian- and Japanese-language WordPerfects to their repertoire of international versions.

Alan Ashton

But the area where WordPerfect sets itself apart from the rest of the industry is in its famous customer support, where almost a third of its personnel are employed. As tightening budgets are causing most companies to devote fewer re-

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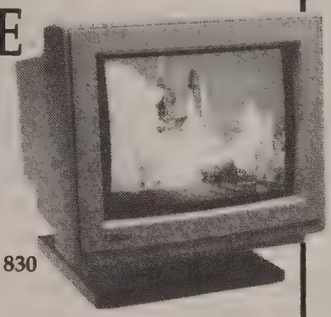

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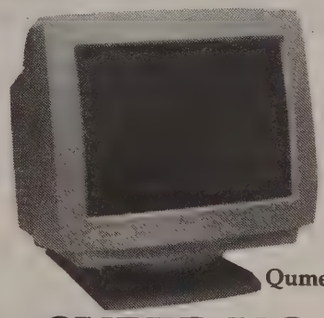

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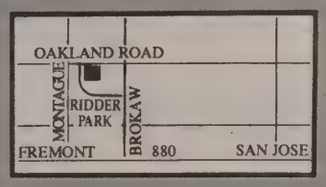


100

sources to support and make it more expensive for the customer, WordPerfect not only continues to offer toll-free help to all its US and Canadian customers, it recently implemented a program of having disk jockeys play music and talk to the callers while they're on hold.

John Barber

General Manager
GEnie

Barber engaged in some aggressive marketing during the year—including substantial rate cutting—and was able to reap the rewards of Prodigy's ongoing (and much-publicized) hassles by offering more liberal conference and email policies at low rates. Along the way, GEnie's evolved into a lively discussion forum with a national reputation—over the last year, we've heard particular recommendations for the Japan and Law Enforcement "Roundtables" as quality resources for debate and information.

Eric A. Benhamou

President and CEO
3Com

Along with Chairman L. William Krause (see separate listing)

Benhamou took charge of 3Com's transition from a client-server networking company to one focused on the issues of global computing, from scalable systems and multivendor environments to product localization. Part of the process was streamlining operations and eliminating projects that didn't fit this strategy—e.g. turning the LAN Manager project back to Microsoft—while another part involved forming and strengthening alliances or joint ventures with companies around the world. As fast, efficient global data communication becomes a business requirement, 3Com expects to capitalize on the growing market by being there first with all the right solutions.

Daniel Ben-Horin

Director
CompuMentor

In the hard times the recession brings, nonprofit organizations often fill the gaps left by budget cuts in social services and other needed-but-costly areas. Nonprofits often want to use computers to do their work more efficiently but can't afford the expertise to get them operating and keep them running.

Enter CompuMentor, which Ben-Horin founded in San Francisco several years ago and which has grown from an intrepid corps of dial-a-nerds to an effective organization that matches increasing numbers of volunteer mentors with nonprofits in need every year. It's served as an inspiration for the creation of similar organizations nationwide, and allowed hundreds of people with computer skills to put them to use where they're most critically needed by those least able to afford them.

Leo Berenguel

President and CEO
PLI

Berenguel cofounded Peripheral Land in 1985 to build SCSI disk drives for Macintosh and OEM accounts, and achieved early success. But while the disk-drive market has been a catastrophe for other vendors, Berenguel, with no outside financing, has grown PLI to a global leader and innovator in the mass storage market—and a spot in the *Inc.* 500 list of fastest-growing private companies for the past two years. The company's diverse range of storage products for Mac and PC has recently been augmented with a series of drive options for NeXT computers, from an external floppy drive to removables and CD-ROMs.

Stephen M. Berkley

Chairman and CEO
Quantum

At a time when US disk-drive vendors are commonly posting losses and moving operations offshore, Quantum opened a

new state-of-the-art manufacturing facility in Milpitas, expanded its product line, and nearly doubled its previous year's earnings. Hardware vendors from Acer to Zenith (and also including Apple, Sun, and Hewlett-Packard), drawn by Quantum's record of innovation and reliability, snapped up the company's fast, dependable 2.5" and 3.5" drives for use in portable and desktop machines. With the advent of the speedy and high-capacity Go•Drives, Quantum's poised to do well in the expanding market for power-efficient portable computers.

BMUG

Cast of Thousands

Still and always in the business of giving away information, BMUG offers such good support and help to its users that it's one of two user groups in the country (the other being the Boston Computer Society) Apple recommends to its users. Executive Director and all-around techno-wizard Steve Costa, along with a host of staff and volunteers, offers technical assistance to members, a forum for vendors (at least the ones brave enough to face the notorious BMUG peanut gallery) to exhibit their wares to one of the most sophisticated and finicky groups of users in the industry, a massive software library on disk and CD-ROMs—and a world-famous array of T-shirts. And while it's the resource of choice for Mac users, there's lots more. Windows. UNIX. Programming Languages. Constitutional Rights. Through it all runs the BMUG attitude of ferocious integrity, irreverence, candor—and quite a bit of residual fervor and zeal.

Michael D. Boich

Chairman

Barry James Folsom

President, CEO, Acting VP Marketing
Radius

As the color graphics and multimedia markets grew in 1991, so did Radius, which reported record earnings for the fiscal year, further entrenched itself in the Mac marketplace, and rode the Windows wave into the PC market. Reflecting the migration to superstores in the dealer channel, Radius signed agreements with CompUSA and Computer City, and, getting an inside track on color publishing, entered into a strategic alliance with Eastman Kodak.

Mary Boone

Partner
NDMA and Associates

Boone, a management consultant, discovered that in the world of corporate computing, the proliferation of machines on the desktop did not necessarily translate to senior management using the tools. A spreadsheet here, a chart there, but very little taking advantage of the powerful capabilities for running a business—often because executives perceived computers as little more than dedicated word-processing boxes for the secretarial pool.

So in the finest tradition of computer evangelism, Boone decided to do something about it. The result is *Leadership and the Computer*, a book of case histories in which CEO-level managers, in businesses ranging from international law offices to magazines to telecommunications to Mrs. Fields' Cookies, offer first-person insight into the tools and techniques that help them keep their organizations competitive. It offers a wealth of information particularly useful to those who know they should be using computers more effectively in their organizations, but don't necessarily know where to begin.

Paul Brainerd

President and CEO
Aldus

The turbulence of the industry left Aldus largely unaffected—earnings were good, and the new versions of PageMaker and Persuasion for Windows enabled the company to capitalize on the explosive growth of the Windows environment. Brainerd, often considered the father of desktop publishing, has broadened his company's scope from the flagship product, PageMaker, to include a full suite of applications for micro-based publishers, from high-end corporate users needing database connectivity to the myriad of entry-level users just discovering the mysteries of page layout.

Frank Buckley

Vice President and General Manager
Disk Products Division, Toshiba America

While US drive vendors have tended to move their manufacturing operations offshore, causing massive layoffs, Toshiba decided to build a new plant in San Jose. The 1GB drives made there were designed at Toshiba's plant in Irvine, but Buckley cited an abundance of skilled disk-drive engineers and proximity to component suppliers as the key factors in the decision to locate the operation in Silicon Valley. When fully ramped up in a few years, the plant is expected to employ four hundred people and build five hundred thousand drives a year.

David Bunnell

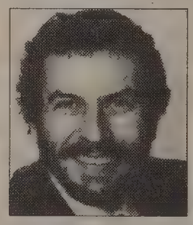
Publisher and CEO
New Media

Publishing veteran (and founder of some of the most-read magazines in the industry, including *PC World* and *Macworld*) Bunnell returns after an absence of several years with a new monthly covering developments in the world of multimedia. To people trying to make sense of the emerging (and conflicting) standards and figure out what's practical and what's pie-in-the-sky, *New Media,* with contributors from artists to futurists, will provide valuable tips and analysis.

Nolan Bushnell

Entrepreneur

The man who brought the world such phenomena as Atari



and Chuck E. Cheese tends to get involved with several new ventures every year. During 1991 he served as spokesman for Commodore's CDTV project and is currently involved with a printer-sharing startup called Octus. In general, Bushnell's one of the people who keep the industry lively. His debates with Electronic Arts chairman Trip Hawkins as to the future of consumer electronics in general and multimedia in particular were among the bright spots on the year's conference circuit; it might be a good thing if they'd take the show on the road.

James A. Cannavino

IBM Vice President and General Manager, Personal Systems
IBM

Cannavino heads the division of IBM most closely involved with Apple in its multifaceted codevelopment efforts, one

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aspect of which is the creation of an object-oriented environment for developers of future system software. Echoing one of the year's recurring themes, he said at the time of the announcement, "Building a true object-oriented software environment will unleash significant productivity gains for users and developers. We are drawing on the best of IBM and Apple to produce a fundamentally new and better method of software construction, one that builds programs with prefabricated blocks instead of line by line. No other technology has the potential to break the applicatons logjam that so frustrates customers today."

Doug Carlston

President and CEO
Brøderbund

1991 saw the initial—and lucrative—stock offering for this award-winning software company, which Carlston has taken to a position of leadership for innovation and quality. Along the way, Brøderbund kept the great software coming, perhaps most notably the inter-generational hit Kid Pix. Another milestone—the elusive Carmen Sandiego, the wily criminal whose bestselling adventures arose from Carlston's childhood fondness for almanac reading—became the first computer-game character to get her own TV show.

Denise Caruso

Editor
Seybold Digital Media

A chaotic convergence of entertainment, consumer electronics, and computing, multimedia is currently at least as much hype and unfulfilled promise as useful product. In her newsletter, Caruso sifts through a bewildering assortment of claims, counterclaims, warring standards, vaporware announcements, and other trappings of an emerging industry, and does a great job of presenting lucid information to readers attempting to make sense of it all for their own strategic planning.

Steve Case

President and CEO
America Online

From the remains of Control Video, a game-downloading service that failed some years back, Case created the company that was, until recently, known as Quantum Computer Services. Now the company's been renamed after its flagship offering, which has grown in the last year to become the nation's third-largest online service (after CompuServe and Prodigy), and the only one that's independently owned.

Case has shown himself to be a conferencing-savvy and clearheaded pioneer. Not only has he attracted an impressive array of investors, from Kleiner Perkins to Citibank, he's offered users (particularly new ones) the best online interface in the business and continually added to the range of services available—in addition to a wide range of discussion areas on various subjects, AO offers direct access to many leading hardware and software vendors in the industry, news and information, and a great software library.

Attracted by AO's low, no-gotchas pricing, free software, and easy-to-use interface, SeniorNet has recently made the system its national home, and a joint venture to create an online version of the *Chicago Tribune* is in the works.

In a year notable for frequent pushing of the Censorship, Privacy, and Computer Crime hot-buttons, Case responded to AO's recent kiddie-porn-in-email flap with a message to his subscribers that's likely to be anthologized as one of the seminal documents in the civilization of cyberspace. The letter alone is a notable achievement for its clearheaded rationality in a situation where hysteria and witch-hunts have become more common; taken in context with the rest of AO's progress in the last year, it's one more indicator of why more and more users are flocking to the system.

Barbara Cass

Executive Director
Software Entrepreneurs Forum

As SEF has grown from small beginnings to an international organization with hundreds of members, Cass has kept it all running smoothly and fostered its evolution. Under her able administration, SEF has become more than a professional association for software developers seeking success in a competitive industry, it's also one of the best networking and resource-gathering places available.

Edwin Catmull

President
Pixar

"We want to help computers make the most gorgeous pictures they possibly can," Catmull remarked last summer—and made some significant strides in that direction. In a major coup indicating the arrival of computer-based animation in the most traditional of places, Pixar's software is now in use at Walt Disney Pictures, replacing arduous frame-by-frame hand coloring. The technology was a success in *The Rescuers Down Under*, and Disney has now agreed to finance and distribute Pixar's first full-length computer-animated film—great news for fans of *Tin Toy* and *Luxo Jr.* and *Red's Dream* and *Knicknack...*

Chan-Young Chew

Founder, CEO, and Chairman
Kris Technologies

A veteran entrepreneur with a track record for founding highly successful international companies, Chew founded Kris (a US-based corporation with most of its investment coming from Singapore) in 1990 to address the information-sharing needs of businesses. In less than a year of selling product, he's built Kris to one of the most ubiquitous product lines on dealer shelves, offering hardware and software solutions from personal fax to sophisticated networks to high-end 486 and RISC machines.

Jim Clark

Chairman

Ed McCracken

President and CEO
Silicon Graphics

McCracken and Clark

While continuing to improve the awesome capabilities of SGI's high-end systems, long the choice of such demanding customers as NASA, Clark and McCracken have pursued a determined campaign to make the power of their real-time 3-D graphics workstations accessible to larger markets. As part of the effort to establish an industry-standard platform, they're key members of the ACE consortium; toward the same purpose, they recently opened SGI's formerly proprietary graphics library as an open standard accessible to developers at a low licensing fee.

But SGI's big splash in 1991 was clearly made by its low-cost workstation, the Iris Indigo, which is taking the multimedia world by storm and about which we'll be hearing a lot more.

Lisa Cohn

Founder, Director
Special Technology Center

Inspired by the plight of her own son, who has cerebral palsy, Cohn founded the Special Technology Center in Mountain View to make computer-based tools available to disabled children and adults. It refurbishes donated computer equipment and lends it to low-income families, helps train teachers, evaluates enabling tools, and, most of all, helps people transcend their disabilities and work, play, create, and communicate.

Scott D. Cook

Chairman, President, CEO
Intuit

Cook founded Intuit to automate those financial tasks common to home users and small businesses, and has built it into a thriving company that draws a whopping 47% of its customers from word-of-mouth recommendations by other customers. Part of this success is Quicken, the first checkbook software users swore by instead of at. But in addition, the company offers accounting and reconciliation software, connectivity with tax packages, and a full range of business forms and supplies. The still-private company is not only one of the chief drivers and beneficiaries of the home computing boom, it's making significant strides in making its products work better in conjunction with government and corporate mainframes.

Jan Davidson

President
Davidson & Associates

A longtime school teacher herself, Jan Davidson founded Davidson & Associates to improve the quality of educational software, and it's been one highly acclaimed package after another for the Torrance-based software house. Her software, which includes the ever-popular Math Blaster series and the multimedia ESL package English Express, implements an integrated approach to learning and is right on target for the needs of young and adult students, as well as their teachers and parents.

Michael S. Dell

Chairman and CEO
Dell Computer

In seven years, Dell has taken his company from a direct-mail clone shop in his dorm room to a $229 million international hardware giant. While technical excellence and customer loyalty are significant factors in this success, Dell has also shown a remarkable ability to adapt to changing market conditions, taking advantage of Ireland's tax benefits by building a manufacturing plant in Limerick and diversifying his distribution to include retail giant CompUSA and business superstore Staples. Dell's company's ability to innovate, keep costs down, and support its customers have kept it growing as many of its established competitors flounder.

Brian Dougherty

Chairman and CEO
GeoWorks

From its somewhat unlikely origins producing windowing environments for the Commodore 64, Dougherty has transformed GeoWorks into a formidable contender in the PC GUI market with GeoWorks Ensemble, a low-cost integrated package that brings multitasking and ease of use to machines that couldn't begin to run Windows. And, undaunted by the challenge of essentially marketing a new operating system in a Microsoft-dominated world, he's attracted developers (most recently Borland with a version of Quattro, providing the environment a first-class and much-needed spreadsheet) and engaged in so many bundling arrangements,

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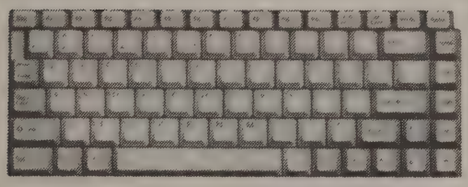

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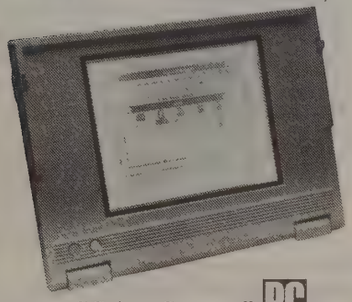

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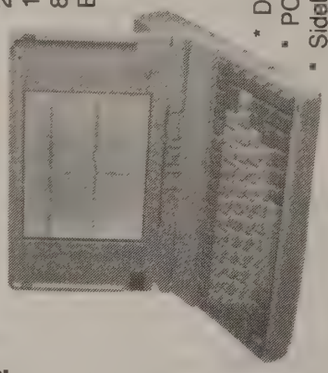

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particularly with portable computer vendors, that GeoWorks has become a respected standard even before its first birthday.

John Dvorak

Columnist, Etc.

There's no stopping this man. Not satisfied with an infinite number of columns, a radio show, and his own book series, he's now going into the software business! First product is a reissue of Force, a dBASE compiler, due Real Soon Now.

Esther Dyson

Editor and Publisher
Release 1.0

One of the most respected analysts in the industry, Dyson not only spots trends, she catalyzes them—e.g., high-tech ventures in the erstwhile Soviet Union and other Eastern European countries. Her newsletter is widely considered the most reliable source of information about the present and future state of computer technology. If she's ever speaking at a meeting in your area, go, listen, and ask questions.

Kamran Elahian

President and CEO
Momenta

It's too soon to tell whether Momenta's unique "pentop" computer, a DOS-based PC notebook that accepts handwritten input and runs standard business applications, will be a runaway success or another of the industry's noble failures. But the little machine, which resulted from entrepreneur Elahian's frustration at not having a computer he could take to meetings, incorporates state-of-the-art technology and offers the benefits of pen computing now to users who don't want to throw out their Lotus spreadsheets quite yet, and represents a set of capabilities not currently available anywhere else.

Larry Ellison

President, CEO, and Chairman
Oracle Corporation

1990 dealt cross-platform database leader Oracle some unprecedented setbacks, including its first-ever loss and a management shakeup that left founder Ellison facing some formidable challenges. However, reports of Oracle's demise turned out to be seriously premature, as Oracle rebounded this year by surpassing the billion-dollar sales mark for the first time in its history, making it one of only three software companies in the world to do so.

Not only is the company enjoying its customary healthy profits, its longtime strategy of porting its software to systems from PCs to mainframes is paying off considerably as the business computing world finds it ever more necessary to move information seamlessly through all of its computing environments.

Mark Eppley

Chairman and CEO
Traveling Software

Eppley's commitment to making life easier for portable computer users dates back to 1983 and the dawn of the Radio Shack Model 100, and he's keeping the company on the cutting edge going into the '90s, with the goal of achieving what he calls "no-penalty portability" as the focus of computing moves from the desktop to practically anywhere the user happens to be.

In his paper "The Extended Office: Toward Communications-Centric Computing in the 1990s," Eppley explains: "The most significant technologies, such as the telephone, are transparent to the user because they become so matter-of-fact that they are assimilated into everyday life. The 1990s will see the emergence of computers that are viewed in this way. Computers will be used much more like telephones are—necessary tools we use daily without giving them a second thought."

Moving toward that goal, Eppley is working to create links with such emerging technologies as pen-based computing and voice recognition, creating an environment in which the equipment is smart enough to navigate the configuration jungle for itself and achieve plug 'n' play communications. A key element of this strategy is Traveling Software's recently announced Universal Communications Object—already licensed to Hewlett-Packard for its palmtop machines and to Slate, the pen-centric software developer.

Eppley compares the UCO to "a Lego block—a consistent, independent module that can be plugged into any software application and provide a service. It will act like the gatekeeper, pump, and channeler—all at one time and with a great deal of intelligence about its environment," able to recognize the hardware it's on and configure itself accordingly, reestablishing interrupted connections automatically, and supporting a variety of platforms including DOS, UNIX, OS/2, and Windows.

Gordon Eubanks

Chairman, President, and CEO
Symantec Corporation

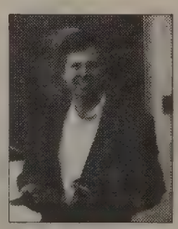
By laying a foundation with strategic acquisitions and a team-based approach to product development, Eubanks has built a strong company with a high rate of customer satisfaction and a broad range of products for platforms including Mac, DOS, Windows, OS/2, and UNIX. Unlike most software-company leaders, Eubanks has chosen to capitalize on becoming the leader in lucrative niches—last year's acquisition of Peter Norton Computing has allowed Symantec to surpass Central Point in the DOS-based utilities marketplace; more recent arrivals like GreatWorks, an integrated package that's finding favor among entry-level Mac users, and Zortech's C++ compiler, a well-received object-oriented programming tool, illustrate the diversity and excellence of the company's product offerings.

Amnon Even-Kesef

President
ASP Computer Products

A reader who prefers anonymity wrote us suggesting that we should find out who runs this Sunnyvale company and put him on this year's list. And after talking to a few happy ASP employees and hearing the reader's tale, we were very glad to do so.

The reader explains why he's so crazy about ASP: "I have a computer. My secretary has a computer. We are several offices apart from each other. I'm self-employed with one employee. I haven't networked yet, because compared to the cost, sneaker-net seems to work fine. There just isn't the need to exchange a lot of files.



"But I need to print. And my perfectly wonderful DeskJet is on my secretary's desk. ASP has offered me the perfect low-cost solution to my problems. I scan ads of a lot of computer publications, and I have seen nothing offered by anyone else for what this does. My setup cost under $200.

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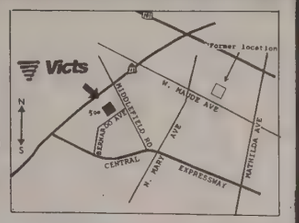

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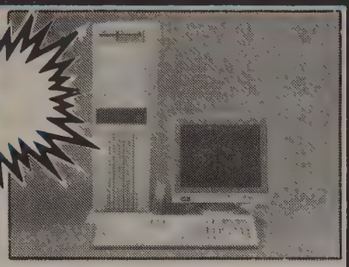

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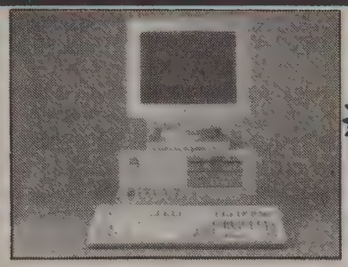

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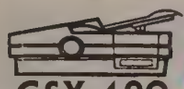

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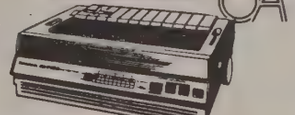

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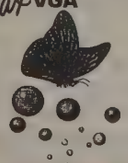

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[telco] plug. I use "straight-thru" (not "twisted pair") phone wire to go into my wall, through the switchboard of the office of which I am a sub-tenant, and into the wall next to my secretary's desk. From there into her computer and again with phone wires, to a Snap Receiver connected to the printer. Basically, I've traded printer cables and an auto-switch box for a telephone wire solution that is good for hundreds of feet. Under $200, how can I beat that?

"These people seem really innovative. When I had a UPS snafu, they were real helpful, and a service person was speaking pridefully of her company and its rapid growth. They have other low-cost printer solutions that are more sophisticated. The whole range of products seems unadvertised elsewhere. Somebody's gotta be doing something right at this company."

ASP employees, meanwhile, responded to our call by providing us with the usual dry biographical statistics but insisting that they didn't tell the true story. So they also supplied us with The Real Story: "Amnon is a high-energy (exhausting by some standards), dynamic, creative person…He demands the best out of himself and the people who work with him. He is fun to work with, and can often be seen in the halls, vociferously debating the aspects of some technology, marketing technique, or whatever with some individual—not necessarily because he disagrees (though you're never sure), but because he wants to make sure that every angle had been explored and that the best possible decision has been made. Although his instincts are right on, he is extremely approachable, and seems to have avoided the egotism that can be characteristic of bright, successful entrepreneurs. We think he's a lot of fun, but don't let him know we told you."

Clearly, this guy is doing something right!

Cliff Figallo
John Coate

"The Vile Figtex"
The WELL

The hardware's flaky, the software anything but point-and-click, and the users often an obstreperous lot. But for all of that, The WELL is arguably the liveliest and most genuinely useful conferencing system around. Hundreds of conferences, hundreds of viewpoints. And somehow between the crashing disks, ill-behaved modems, frequent feuds, and other day-to-day crises, director Figallo and marketing director Coate, better known as the Vile Figtex, somehow managed to keep the system growing and the social fabric from unraveling.

At year's end, Coate departed to help launch a US version of Minitel, the low-cost conferencing system that galvanized France and spawned an astonishing range of online cottage industries. We await the results with great interest.

Chuck Forsberg

Author
ZMODEM

Suggested by reader Phred Heutte, a happy user of his product, Forsberg is a hero to online users everywhere because of his constantly improving ZMODEM software.

Says Heutte: "Chuck Forsberg devised and continues to revise the ZMODEM file transfer protocol. In the last year, after slowly rising to prominence in the BBS world, it suddenly became a 'standard requirement' for comm programs to support, for example in *PC Magazine*.

"There are quite a few important features in ZMODEM—being able to send a batch of files automatically, 32-bit CRC, end-to-end rather than packet-by-packet error checking, automatic file recovery starting where the previous transfer broke down, and so on. Plus Chuck has made a big effort to distribute ZMODEM on lots of different architectures and OS environments.

"All of this sounds very techie, and it is, but there's no doubt that Chuck really understands the glorious mess of serial devices and data transmission over phone lines and modems and all that stuff.

"Nobody will ever accuse Chuck of writing code for the masses. ZMODEM is most notably available through dsz, his MS-DOS file transfer program, which is distinguished by the single most complex command line I know of (outside of C compilers) and absolutely impenetrable documentation. It's an old-fashioned way to develop a standard, but because of the way data communications works it's probably the only way; anymore, unless you want to spend a decade wrestling over X.400 on some damn committee.

"Chuck's work has made ZMODEM a reliable, sophisticated, tough, efficient, and widely available file transfer standard, and I think it's time he got some recognition for it. ZMODEM has sure added to my own productivity, and there aren't really very many software apps that can stake that claim."

David Fry
John Fry
Randy Fry
Kathryn Kolder

Fry's Electronics

Before "superstore" was a buzzword and an ever-more-predominant approach to computer sales, the Fry brothers and Ms. Kolder, who deals with most of the retail giant's day-to-day operations, pioneered the idea. It's been so successful that the Bay Area Fry's stores are a mecca for the technical community and a favorite stop of Japanese tour buses, and the Fry's phenomenon is due to hit Manhattan Beach as the first Southern California store opens early this year.

William H. Gates

Chairman and CEO
Microsoft

Aside from the fact that Microsoft posted record growth and

earnings, which is hardly news at this point, it was a pretty interesting year. The company's long-standing association with IBM crumbled as Microsoft gave up on OS/2 and decided to devote its energy to developing the enormously successful Windows for emerging platforms, from pen-based machines to UNIX workstations.

Never mind the aspersions Gates cast on UNIX in our interview with him last year…this year Microsoft is a founding member of the ACE standards group, along with such UNIX stalwarts as DEC, Silicon Graphics, and SCO, as well as a host of PC manufacturers.

In another alliance for the future, Microsoft announced the Multimedia PC. And, not forgetting its oldest customers, it shipped the well-received DOS 5.0.

But the most spectacular success was with Windows. Not only was Windows 3 one of the best-selling software packages in history, Microsoft didn't dally, like many of its competitors, in developing products for it. Consequently, as Lotus foot-dragged, Excel stole its customers. Word for Windows was a big winner, and at year's end the all-new Works for Windows and a host of products from Publish to Money were doing well with critics and customers.

Fred M. Gibbons

President and CEO
Software Publishing Corporation

This year Gibbons sharpened his company's focus on the corporate market, selling the entry-level PFS: product line to Spinnaker and rounding out the suite of business applications with the acquisition of the British company Precision Software Ltd. Precision developed and markets Superbase 2 and Superbase 4, leading database products in the Windows market.

In addition, Gibbons reorganized the company in order to

promote better cross-platform development and coordinate the marketing of its various products. The company continues to dominate the DOS-based corporate graphics market with the latest version of Harvard Graphics, and the Windows version is due any day now, positioning SPC to take advantage of the next generation of PC hardware and operating systems.

We'd also like to salute Gibbons for a somewhat unusual Industry Innovation—the "Event-On-A-Disk." Instead of having yet another overblown press conference, SPC decided to launch Harvard Graphics 3.0 and Harvard Graphics for Windows by mailing press kits and munchies to journalists (thereby reducing gasoline consumption, traffic congestion, and editorial burnout), and donating the savings to Project Literacy. We hope this represents the start of a trend…

Judge Harold H. Greene

U.S. District Court

Practically everybody has seen those commercials—full-size full-motion video on the wall of your living room, letting you tour art museums or have Thanksgiving dinner with your family on the other side of the country. All brought to you by your friendly local RBOC, aka The Phone Company. If only Judge Greene would go away.

Judge Greene, who wrote the 1982 antitrust decision breaking up the AT&T monolith into seven Regional Bell Operating Companies, has been something of a thorn in the side of the Baby Bells because he's steadfastly refused to let them get into the "information services" market (or, for that matter, the long-distance business). And while his 1987 decision reinforcing this point was overruled in 1990 by the US District Court of Appeals for the District of Columbia, compelling him to withdraw the prohibition (with extreme reluctance), he kept the ruling from taking effect until it could be appealed by its opponents—which include, among others, most print-publishing associations.

Greene's position is one of the most hotly debated issues in the industry, but he's proceeding from serious concern about re-creating the very anticompetitive situation he's charged with eliminating. As he wrote in the ruling: "The most probable consequences of such entry by the regional companies into the sensitive information-services market will be the elimination of competition from that market and the concentration of the sources of information of the American people in just a few dominant, collaborative conglomerates, with the captive local telephone companies as their base. Such a development would be inimical to the objective of a competitive market, the purposes of the antitrust laws, and the economic well-being of the American people."

And, at year's end, the latest campaign by Southwestern Bell to charge commercial business rates to non-commercial BBS systems, thereby putting most of them out of existence, suggested that the Judge's worries are not utterly unfounded.

Andrew S. Grove

President and CEO
Intel

It was an interesting year at microprocessor giant Intel. Though facing challenges from other chip vendors, notably AMD with its 386-compatible CPUs and the growing popularity of the SPARC standard, Intel handily retained its domination of the PC marketplace. The popularity of Windows 3, with the attendant demand for more powerful hardware, seems likely to ensure a comfortable edge for Intel well into the future, regardless of emerging rival standards.

Nonetheless, Grove has never been one for complacency or betting the entire company on a single product line. Among the more interesting efforts currently in progress is the DVI (digital video interactive) standard, which may soon

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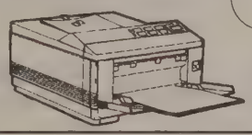

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achieve commercial viability with the growing demand for multimedia products.

But in the meantime, taking advantage of a current market need, Grove launched what is, for Intel, a new venture—a division specializing in a full range of networking products "intelligent" enough to take much of the pain out of LANs. Initial reports are highly positive.

W.M. (Trip) Hawkins

Chairman/President and CEO
Electronic Arts/SMSG, Inc.

While most US game vendors decided to stay away from the new 16-bit platforms offered by Sega Genesis and Nintendo, Hawkins, who's always had a great understanding of the consumer software market, decided to support them aggressively. Now, against much conventional wisdom, 16-bit cartridges are one of the company's big moneymakers.

By way of preparing for the Next Big Thing, interactive multimedia, Hawkins is now the president of a new startup, SMSG, Inc. (which, he claims facetiously, stands for "San Mateo Secret Guys"). A joint venture of Electronic Arts, Time Warner, and leading VC firm Kleiner Perkins Caufield and Byers, the startup sets itself the goal of helping entertainment software companies take advantage of emerging markets in interactive multimedia.

And if there's anything Hawkins knows, it's emerging markets. As he said in announcing the SMSG launch, "Computers are becoming audiovisual while consumer electronics are going digital. There is huge potential for a vast interactive software market to emerge. Electronic Arts is already a leader in interactive software. With Time Warner's global leadership in information and entertainment, and KPCB's record for technology innovation, we are starting with outstanding partners." Indeed.

Larry Heimendinger

President and CEO
Nantucket Corporation

Heimendinger's company has been one of the big winners in the database wars, taking advantage of Ashton-Tate's difficulties to acquire impressive new market share. In the two years since he's been overseeing the company's operations, Heimendinger has almost tripled Nantucket's revenues and opened offices in Brazil, Japan, Belgium, Canada, and the Soviet Union.

Craig Hickman

Author

Kid Pix

It takes a rare talent to create software that's equally entrancing to kids and adults. Hickman did it. We've lost count of the number of adult Power Users who explain that they bought Kid Pix for the kids, and the kids love it, but the fun really starts when they abandon the computer to the Parental Units. Great software from Brøderbund is nothing new, but Kid Pix is in a class by itself. We hope it isn't for long.

Stephen Hill

Producer
Hearts of Space

Reader Greta Bickford, who works at Backroads Distributors, a New Age music mail order house in Corte Madera, writes in to nominate Hill, who produces the nationally syndicated space-music program *Hearts of Space*. Hill is, by all accounts, an effective evangelist for what people can do with computers.

She says of Hill, "He keeps mentioning The WELL on his radio show, thereby alerting large numbers of people every week to the fun to be had in electronic communication/BBSing. We get quite a number of requests here at work for info about The WELL because somebody in middle America heard about it on *Hearts of Space*...and I'm convinced, from talking to these people, that most of them are looking at computers in a new way because of these mentions."

She adds, "The Hearts of Space record label, under Stephen's direction, creates 100% of their album cover art on Macintoshes and puts the info on the covers, thereby increasing awareness of the artistic possibilities of computers..."

Dave Hughes

Operating Officer
Old Colorado City Communications

Whether it's setting up a BBS so that artists on remote Indian reservations in Montana can display and sell their art via computer, or coordinating a project in which an MIT professor taught Chaos Theory to an online "class" of students across the country, computer populist Hughes keeps pushing the limits of what people in all walks of life can do with the tools of telecomm.

On the principle that there's no substitute for a little face-to-face contact, he put together the first Telecomm Trappers' Rendezvous, a gathering of online folks from around the country in a remote section of Wyoming.

1991 also marks the historic acquisition of Dave's First Mac, an event likely to have far-reaching effects on the advent of the NAPLPS graphics standard (which enables Indian Art to be very small files, and professors to transmit handwriting to terminals across the country) in the Macintosh world.

Steve Hui

Chairman and CEO
Everex

Like many other PC hardware vendors, Everex has been feeling the crunch lately as the market becomes fiercely competitive and price-sensitive. Fiscal 1991 showed a $48 million loss, and Hui joined forces with President Harold Clark to bring the company back to profitability. They've succeeded in this goal, partly because of the success of Everex's relatively high-margin Tempo notebook computer line.

Like others in the industry, they've also scaled down the range and number of their products, eliminating a significant number and developing a unified strategy. Despite the hard times, however, they've kept the customers happy. During 1991, Everex finished first in the Dataquest poll of PC Customer Satisfaction, and did likewise on a similar survey by *Computer Reseller News*; it also came in fifth in a field of ten computer manufacturers in J.D. Power's first-ever Index of End-User Satisfaction.

Tim Jenison

President

Paul Montgomery

Vice President
NewTek

Youthful inventor Jenison and former Electronic Arts employee Montgomery met in 1986, not long after Montgomery had founded the first Amiga user group in the Bay Area and Jenison started selling DigiView. A little brainstorming, and they came up with the idea for the Video Toaster, a product which has probably sold more Amigas than all of Commodore's marketing efforts combined and opened up Desktop Video to people without megabudgets. However, soon you won't have to buy an Amiga to get your own Toaster—Mac and PC versions are due out (finally) in early 1992.

Man of the Year

Philippe Kahn

President, Chairman, and CEO
Borland International

Borland's acquisition of Ashton-Tate (see cover story) easily qualifies as the industry bombshell of the year. But Kahn's commitment to customer satisfaction and determination to innovate, not litigate, have put an end to the long-running courtroom warfare over the dBASE language and cleared a path for future directions in database development. One can only hope Lotus's suit over Quattro Pro's use of its command set comes to a similarly happy resolution.

Steven P. Jobs

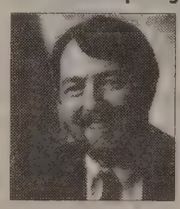
President and CEO
NeXT

Not only did the long-prophesied Death Of The Cube fail to take place in 1991, Jobs succeeded in selling a respectable number of the black workstations and convincing both buyers and developers of the NeXT's technical superiority. All is not rosy at NeXT—it's suffered the consequences of chameleonic marketing strategies and a dealer channel that often ranged from troubled to nonexistent. But the excellence of the machine itself and the sheer determination of Jobs to make it succeed lend credence to the notion that these problems, too, will be solved.

And as the industry hops en masse onto the object-oriented programming bandwagon, Jobs is not loath to point out the many virtues of the NeXTstep development environment, which has already enabled developers from startups to the venerable WordPerfect to create amazing NeXT applications in a fraction of the usual time—a distinct advantage in these competitive and cost-conscious times.

Reese Jones

Chairman and CEO
Farallon Computing Inc.



Farallon has grown remarkably since the day a few years back when BMUG founder Jones stood up in a meeting brandishing some phone line and announced BMUGnet. In order to address the ever more complex needs of his growing customer base, Jones made a couple of significant changes in 1991. First, after serving as president, chairman, and CEO since the startup days, he went out and hired a president, Alan Lefkof, former president of GRiD Systems. Lefkof's extensive knowledge of the mobile computing world is expected to be a major asset to Farallon as remote computing becomes a crucial part of its business. Later in the year, Farallon made the strategic decision to focus entirely on its networking operations, and sold its popular MacRecorder product to multimedia leader MacroMind.

Jerry Kaplan

Chairman and Cofounder

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Robert Carr

Vice President of Software and Cofounder
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Take a couple of wizards (Kaplan, the former chief technologist at Lotus, Carr, former chief scientist of Ashton-Tate) and add a former football coach and longtime market development expert (not only was Campbell instrumental in the success of the Macintosh at Apple and the man who led the building of Claris, he's the only CEO we've ever heard of whose former employees took out full-page ads to bid him a touching and affectionate farewell), and you've got a pretty interesting company right there.

But that's the least of it. Against formidable odds, GO launched its built-from-the-ground-up object-oriented operating system for pen-based computers, attracted an impressive array of developers, and generally turned out to have one of the most interesting technological innovations to come to light in the past year.

While the company faces serious obstacles, not the least of which is Microsoft's rival PenWindows system, it's also garnered a lot of respect from former skeptics and the development community, and is certainly going a long way toward defining the more humanized computing environments of the future.

Mitch Kapor

President and Cofounder
Electronic Frontier Foundation

Since Lotus founder Kapor cofounded the EFF last year, he's spoken at countless meetings, hearings, and conferences, not to mention the occasional congressional committee, on a wide range of issues regarding the evolution of computer-based communications, from civil rights to computer crime to constitutional protections. Just as significantly, he's caused the organization to intervene on behalf of individuals caught in the middle when the law goes awry, most notably in bringing suit with game publisher Steve Jackson against the law enforcement agents who all but destroyed Jackson's business in the course of a now-notorious sealed-warrant fishing expedition.

As contributing writer Fred Lieberman puts it, "I think Mitch Kapor's work with EFF affects everybody, from micro- to super. But the Supers can usually guard their own freedoms, or hire lawyers to help. So EFF is disproportionately helpful to the micros..."

Guy Kawasaki

Columnist
MacUser

Kawasaki's column is a favorite source of irreverent MacInfo, but he's also been unusually busy with outside projects in the last year. Two of the more noteworthy were books: One, *Selling the Dream,* is a hilarious and thought-provoking treatise on guerrilla marketing that ought to be read by every technoid with an idea that wants to become a company; the other, *Database 101,* is an excellent introduction to the subject aimed particularly at the first-time user and anybody else whose instinctive reaction to setting up databases is sheer panic.

Gary A. Kildall

Chairman and Founder

Dick Williams

President and CEO
Digital Research

Students of computer history will recall that back before the IBM PC, Kildall and his company came up with the first widely accepted standard operating system, CP/M, and, for various still-discussed reasons, missed the boat with the IBM PC. For the intervening decade they've existed in relative obscurity, developing assorted specialized operating systems, graphics packages, and the like, with their DR DOS operating system always maintaining a devoted cult following amid those who preferred it to the Microsoft version.

Gary A. Kildall

No one's going to accuse Digital of obscurity this year. Bill Gates himself allowed as how DR DOS 6 was a significant competitor to MS-DOS, and while this may have been an exercise in professional courtesy on his part, hordes of new and old customers agreed with him, often finding that Windows 3 ran better under Digital's operating system than Microsoft's.

And in a year characterized by startling mergers, alliances, and acquisitions, Digital was involved in one of the most noteworthy—a merger with Novell which made Digital a wholly owned subsidiary of the networking giant. Results in the collaborative-computing area should be interesting.

L. William Krause

Chairman
3Com
Chairman
PenSoft
President and CEO
Storm Technology

Krause retired as president and CEO of 3Com, a company he'd built from the startup stage, in the fall of 1990. In the meantime, while remaining as chairman at 3Com, he's also become involved in two quite different startups, both positioned to take advantage of emerging markets.

The first, PenSoft, is a leading developer of applications for pen-based computing. The second, Storm, is a key supplier of JPEG-based image compression, an essential component of publishing, multimedia, and related applications.

Krause seems to have an affinity for startups and an ability to help them become industry standardbearers. As he said on the occasion of joining Storm in December, "Storm today is where 3Com was when I joined it. Just as 3Com's Ethernet made today's pervasive networking practical, Storm's enabling technology will dramatically increase the use of color images in printed documents and computer applications."

David Liddle

Vice President, New Systems Business, Personal Systems Division
IBM

Xerox veteran Liddle founded Metaphor in 1982 and served as president and CEO, and also was the president of the Metaphor/IBM joint venture Patriot Partners. A pioneer and leader in the fields of user interfaces and client-server technology, he played a key role in the IBM-Apple technology agreement and will be instrumental in the development of resulting products, particularly at the new operating system company Taligent.

Leonard Liu

President
The Acer Group
Chairman and CEO
Acer America

Liu has brought the US branch of the Taiwanese hardware giant to an eminent position in corporate computing, with a strong presence in the dealer/VAR channel and growing popularity in the consumer market. Acer has introduced such cost-cutting innovations as its "Chip-Up" upgrade technology, which allows users who need better system performance to simply buy more powerful off-the-shelf Intel CPUs and plug them into the motherboard, thereby saving both money and grief.

Responding to the growth of networking and the UNIX market, Acer acquired Altos Computer Systems, a pioneer in multiuser technology, and the two companies have formed alliances with such key players as Intel, Microsoft, Novell, SCO, and Informix.

Gilman G. Louie

CEO
Spectrum Holobyte

Louie, who has clearly never lost his passion for games or his instinct for what makes a great one, had quite a year.

While his company's games, from Tetris and its progeny to race car and jet fighter simulations, continued to sap the national productivity by siphoning off hours from the lives of people who were supposed to be working, military commentators also fueled impassioned debate by suggesting that young soldiers who grew up flying Spectrum's jet fighters on their PCs were a vital component of the nation's military superiority during the Gulf War.

But while Louie kept the great games coming all year, his greatest coup was beating all the entrenched developers in the field by bringing the first Virtual Reality product to the consumer market, creating several very impressive interactive total-immersion games for the British-manufactured Virtuality system. It's currently being installed in arcades around the country, and even at a dollar a minute, attracting hordes of customers. Ironically, the heart of the machine is an Amiga 3000, proving once again that third-party vendors seem to have better ideas of what to do with Commodore's computer than Commodore manages to think of for itself.

One cloud on the horizon is that Spectrum and its parent Sphere are owned by the multitentacled Robert Maxwell empire and therefore face an uncertain future. We hope it all works out—this company is much too good to die.

Gene Lu

Chairman, President, and CEO
Advanced Logic Research

While many PC hardware vendors had a rough time this year, ALR prospered and reported its best-ever earnings. Lu's emphasis on making high performance affordable, notably with the modular "Just Upgrade The CPU" approach to letting customers take advantage of rapidly advancing chip technology, has made ALR products increasingly popular with cost-conscious buyers, from individuals shopping the retail channel to large-volume corporate accounts.

Macintosh PowerBook Development Team

Apple Computer

Much propaganda has emanated from Cupertino over the years about "the power to be your best." Apple even trademarked it.

Well, apparently some of those engineers took the notion to heart. While there's definite room for improvement in Next Year's Models, these are quite possibly the finest machines Apple's ever made.

And now the bad news. Speaking at the PC Outlook conference, Chairman and Chief Technical Officer John Sculley allowed as how the exceptionally popular PBs might be out of back-order by the end of the second quarter of 1992...

Jim Manzi

President and CEO
Lotus

It's been a year of mixed blessings for Manzi and Lotus. On the one hand, flagship product 1-2-3's market share was significantly eroded in the Windows marketplace due to the company's admitted failure to anticipate the enormous popularity of Windows 3.0 and allocate development resources accordingly, so that by the time Windows 1-2-3

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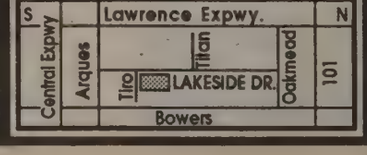

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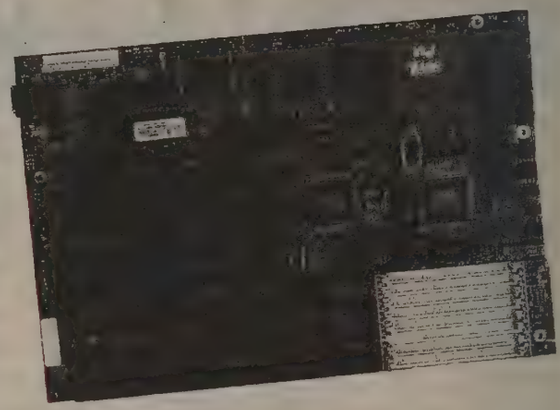

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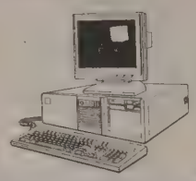

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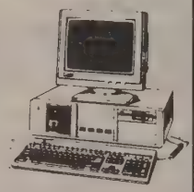

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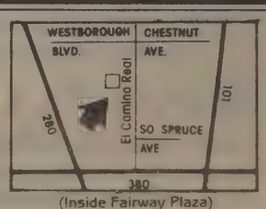

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- WE ACCEPT PURCHASE ORDERS FROM: SCHOOLS, UNIVERSITIES, HOSPITALS, GOVERNMENT AGENCIES

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$4.50 MINIMUM SHIPPING

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LOGITECH MOUSEMAN	$89
LOGITECH TRACKMAN SERIAL	85
LOGITECH SERIAL W/WINDOWS 3.0	149
LOGITECH MOUSEMAN W/WINDOWS 3.0	139
GENIUS MOUSE GMD 321 W/DR. GENIUS	49
X-NIX SUPER MOUSE W/WINDOWS 3.0	99
DEXXA 3 BUTTON	39

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SAMSUNG 12" AMBER MONOCHROME	$90
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VIEWSONIC 14" 1024x768	360

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AHEAD VGA WIZARD DELUXE 5.0 W/1 MB	155

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PANASONIC

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KX-P1124i	309
KX-P1123	269
KX-P1624	389

EPSON

LX-810	$175
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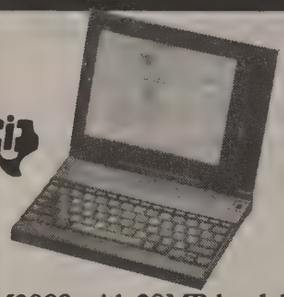

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- VGA Display 640 X 480
- Sleek design ---- only 1.4" thin
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TM3000 WinSX 60MB $2699
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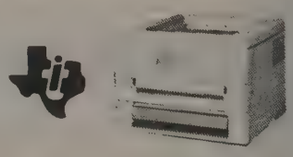
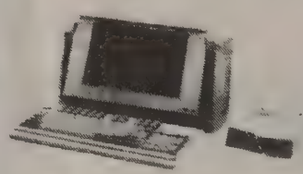


PS17 9ppm $1245
PS35 9ppm $1475
PS17XL 16ppm . . .$2499
PS35XL 16ppm. . . $2799
AppleTalk for Mac . . . . .
for PS/PSXL. $95/155

VGA PORTABLE

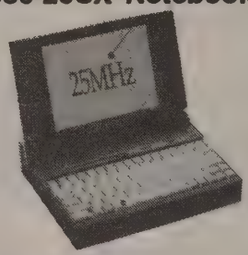
GAS PLASMA / LCD



- 80386-25SX
- 1MB EXP. TO 16MB
- 2 Expansion Slot
- 1.2MB w/FHDC (1.44MB Optional)
- VGA 640 X480 16 Gray Scale
- 2 Serial 1 Parallel
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

$1695 / $ 1495
GAS PLASMA LCD

386-25SX Notebook



- 386-25SX
- 4MB EXP. TO 8MB
- Stand-by Mode (includes CPU, I/O and peripheral automatic power down)
- SuperTwist VGA LCD, 32 Gray Scale
- 1.44mb Microfloppy Drive,
- 1 Serial ,1 Parallel, VGA External Port,
- External 101 keyboard Port, Mouse Port
- 60MB /80MB Hard Disk
- One year Warranty Parts & Labor

$2395 60MB / $2595 80MB

386-33DX Notebook

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- External Drive Port
- 1 Serial ,1 Parallel, VGA External Port,
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- One year Warranty Parts & Labor

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- 120MB Hard Disk (18ms)
- One year Warranty Parts & Labor

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McTEK 386-16/386-25SX

- 80386-16/386-25SX
- 1MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

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McTEK 386-25/386-25 cache

- 80386-25/386-25 WITH CACHE
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- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

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McTEK 386-33/486-25

- 80386-33/486-25 WITH CACHE
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- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 120MB Hard Disk (17ms)
- One year Warranty Parts & Labor

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McTEK 486-33/EISA

- 80486-33 WITH 64K CACHE
- 4MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 120MB Hard Disk (17ms)
- One year Warranty Parts & Labor

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120MB Maxtor (16ms) . . . $379
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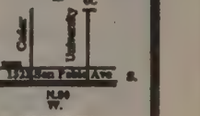

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M.B 386-40/64C /W CPU	$ 425
M.B 486-33/64C /WCPU	$ 680
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TRIDENT 512K	$ 55
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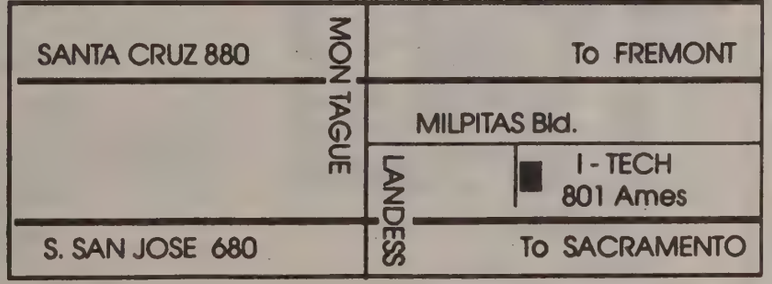

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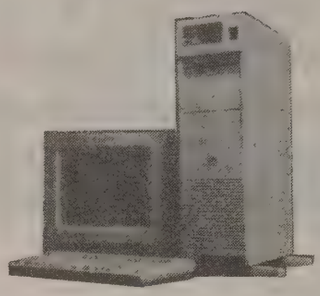
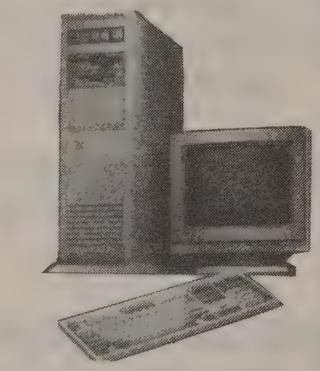
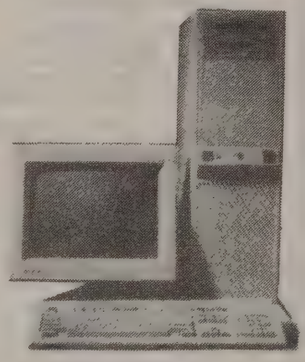


486-50 SVGA Cache System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$2375



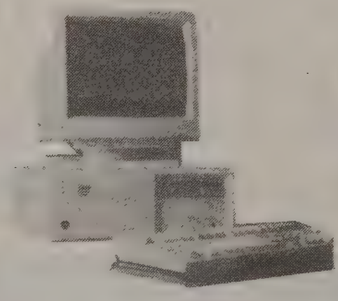
486-33 SVGA Cache System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$1495

386-40/64KB Cache SVGA System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$1245



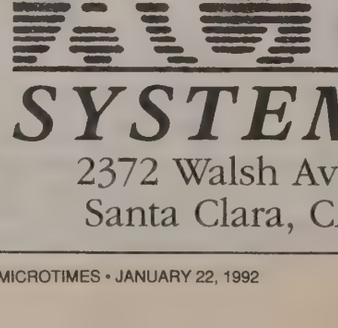
386-33/64KB SVGA System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$1195

386-25SX SVGA System
•Basic Configuration •40 MB 28ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$895



486-33 EISA 256KB SVGA System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$2525

486-SX20 Cache SVGA System
•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card
$1425



MOTHERBOARDS

386SX-20	$190
386SX-25	220
386-33/64K Cache	390
386-40/64K Cache	400
486-33/64K Cache	690
486-33/128K Cache	740
486-33/256K Cache	780
486-50/64K Cache	1530

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-AMI 386/33	985
-AMI 486/33 ISA	1816
-AMI 486/33 EISA	2096
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-Micronics 386/33	798
-Micronics 486/33 ISA	1458
-Micronics 486/33 EISA	1598

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-7000 FAST SCSI	295
-Adaptec 1542B SCSI	247
-IDE controller	14
-Mylex DCE 376 EISA	650

***HARD DRIVES**

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-Diamond Speedstar all models	
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-Orchid Pro Designer IIs w/1MB	$189
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-Hercules Graphics Station	
-X-Performance	
-CAD Race	
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-United Solution w/1 Meg	
-Matheus	Call

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-Supertron	$297
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-Sony 1304	565
-NEC 3FG/4FG/5FG/6FG	
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-Cornerstone	
-Toshiba 17"	1250
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-Step 386-33	Call
-Step 486-33	Special

***MODEMS**
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-Telebit 1000, 2500, 3000
-Hayes all models
-Everex all models
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***MOUSE**
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-All models

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-SCO, Proteon, Aquila
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***COMPAQ**

-Deskpro 386SX/20	$1395
-Deskpro 386-33	5095
-Deskpro 486-33	12,011

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-PS/2, 55SX	$1765
-PS/2, 70B21	2497
-PS/2, 80A61	4485

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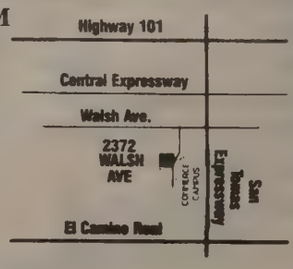

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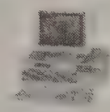

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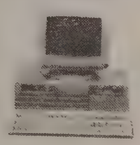

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- EMS-LIM 4.0 on Board
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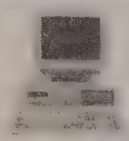
- 101 Keyboard
- Choice: Regular Baby Case or Small Vertical Case



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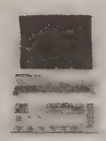
- 101 Keyboard
- Choice: Regular Case, Baby Case or Small Vertical Case



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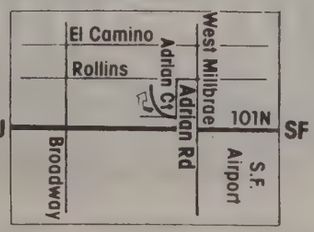

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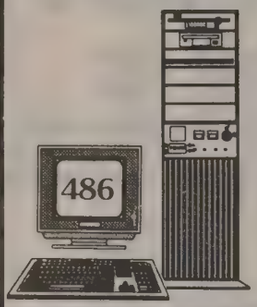

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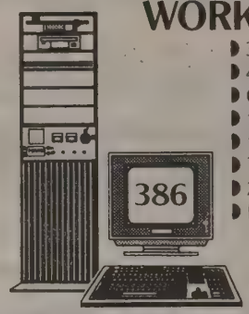

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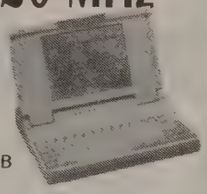

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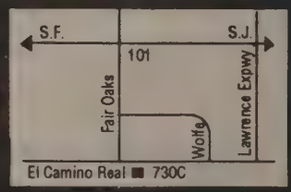

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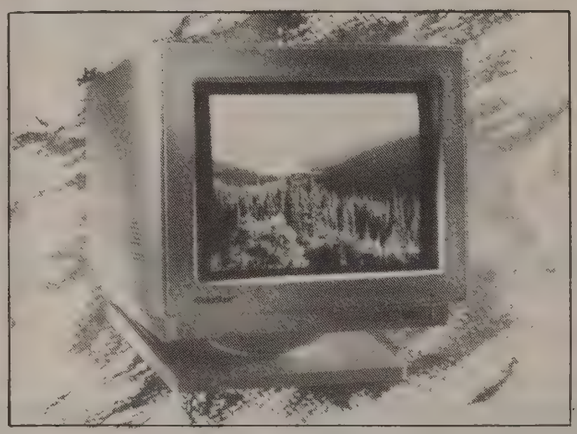

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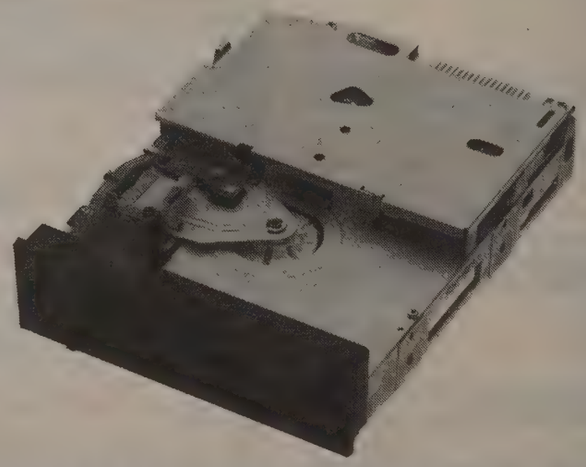

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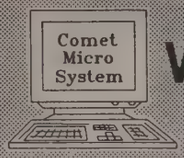

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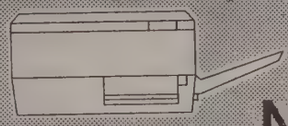

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Orchid Prodesigner IIs 1MB & HiColor	155.00
Video 7 Spea 1280 2MB/1MB VRAM/DRAM	CALL
Video 7 VRAM II with 1MB VRAM	CALL
#9GX Level 2 to 5, 22 to 25	CALL
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Trident 8900 Chip Set 1MB SVGA Adapter	89.00
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Mini Case with 230W Power Supply	89.00
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230W AT Size Power Supply for Tower Case	69.00
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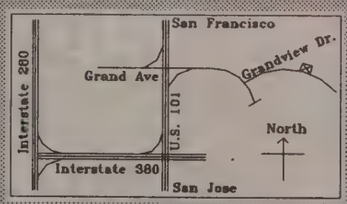

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MOTHER BOARDS:

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286-12.....C&T.....$64
286-16/20.....$79/103

386SX-16/25.....$149/188
386SX-16 Mylex.....$179
386DX-25.....$274
386DX-25/33C.....$330/365
386DX-33C...US.....$395
386DX-40C.....$380

486DX-25C.....$595
486DX-33C.....$660
486DX-33C...US..CC...$795
(tested on UNIX; IDE, I/O)

All boards include CPUs

CONTROLLERS:

IDE 2FD/2HD.....$17
IDE 4FD/2HD.....US.....$37
IDE W/ 2SPG.....$27
MFM 2FD/2HD.....$39/59
RLL 4FD/2HD..US.....$75

SCSI

DTC/FD.....$125/49
ADAP 1522B/kit...$130/157
ADAP 1542B/kit...$239/279
ADAP 1740 EISA $499
Mylex EISA.....$625

ESDI

DTC...16.....$125
MAPLE..64K.....$107
ULTRA 32K.....$177

XT FDC/HDC.....$13/45
XT MFC 2FD/4FD ...$24/28

ADAPTORS:

Mono Graphic Card.....$13
CGA mono and printer ports.....$23

VGA OAK 256/512.....$37/51
VGA Trident 1MB.....$76
VGA TSENG 1MB.....$99
VGA Orchid IIs 1MB.....$175
VGA Orchid II 1MB.....$197
VGA V7 1024i.....$167
VGA V7 VRAM.....$355

9GXi 22/23/24..$849/1125/1345
SGX 1280/1600.....2750/2950

Modem 2400..AMS US....$49
Modem 2400 EXT.....$87
Modem 9600.V.42bis....$419
Fax/Modem..9600 AMS..$89
US Robotics HST ext....$868

2Serial/Parallel/Game.....$15

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Keytronic/OMNI.....$48
Black.....101k.....$43

SCANNERS .....Mouse

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Artec Grey 32.....$120
Color..hand/Full...$345/1245
Black Mouse.....$27
Mouse/T Ball.....$18/25
Logitech S/P.....$65/75
Microsoft Mouse.....$85

DRIVES:

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Floppies 1.2/1.44...$.55/.86

IDE

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ST 89/210.....$265/565
ST 338/426.....$1077/1397
CON/Mxt/Quan 84.....$262
CON/Mxt/Quan 120....$339
CON/Mxt 204.....$519
MXT 213/340.....$587/923

MFM/RLL

KALOK 20 MFM.....$127
ST 40.....MFM....$217
ST 60.....RLL...$267

ESDI

ST 172/338.....$737/1167
MXT 203.....$757
MXT 338/670....$1067/1322

SCSI

CON 40.....$195
CN/MXT120/204..$345/579
ST 89.....$287
ST 172/338.....$607/1057
ST 680/1G.....$1299/1875
MXT 81/157.....$297/827
MXT 213/340.....$587/925
MXT 670/1G....$1322/1925
Fj 380/680.....$1119/1260
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Black SVGA.....$309
VGA....51/.39.....$199/221
VGA....28..640x480.....$269
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SVGA CTX/V4E.....$307/317
SVGA 1024 V6 NI.....$395
VGA M/Syn.....V3.....$467

Sony 1304/V5.....$583/557
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Nanao9080i/Tosh..$1085/1025
IDEK..5117/5217....$989/1045
Taxan 17"/V7.....$1195/1220

HIT 2085...1280NI.....$1745
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Toshiba 21".....$2177
Sony GDM 1936.....$2549

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Citizen 200GX.....$163
Citizen GSX130.....$255
..color option.....$42

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OKI Laser 800 8ppm.....$925
Toner.....$38
OKI 830 Post Script.....$1299

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HP ....2M/4M.....$127/207
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NETWORK PROD:

NE 2000.....$177
NE 2000 Comp.....$120
WD 8/16 Elite +.....$145/175
3COM Etherlink II.....$187
10 Base T 8/16.....$138/148
Hubs, UPSs, etc..

NETWARE

V2.2 5/10/50.....$499/1095/1945
V3.11 ..20/100.....$1945/3895
V3.11 250 user.....$6895
Light w/ DOS 6.0.....$79

CD ROMS:

Sony 531 Kit.....$387
Encyclopedia.....$77
US Atlas/Game Pak.....$43/47
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Ask for catalog...over 30 titles

CASES, Etc:

XT Case w/ PS.....$57
Baby Case w/ PS.....$67
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Mini/Med Tower.....$67/89
Full Tower w/ PS.....$109

Black Cases w/ PS

Black Baby/Mini.....$91
Black Med. Tower.....$135
Black Full Tower.....$152

Power Supplies

150 XT/PC POWER.....$36/85
220 AT.....$48
Mini/Full Tower.....$41/59
Full Tower..300W.....$80

MYLEX:

386SX-16.....$179
386-25/33.C.....$510/595

486-33C..ISA.....$925
486-33C..EISA.....$1495

SCSI EISA.....$625
Ethernet EISA.....$327
GXE..VGA EISA 020B..$1199

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MS Windows w/mse.....$69
DOS3.3/4 w/sys.....$36/42
DOS5/6..w/sys.....$55/69
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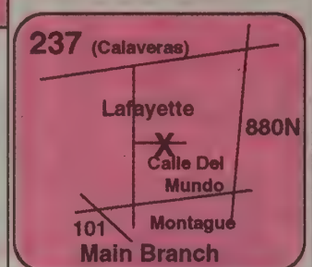
Word Perfect 5.1.....$265
Lotus 1-2-3 V2.3.....$345
Aldus Page Maker 4.0....$499
Corel Draw 2.0.....$412
Sound Blaster.....$119



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EXCEL EISA 33MHz 486

w/256KB Cache

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- **4 MB RAM**

On-board, expandable to 64 MB

- 1.2 or 1.44 MB Floppy Drive
- 1:1 Interleave Hard/Floppy Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Real Time Clock
- 250W Power Supply
- Vertical case holds 6 drives
- Supports MS-DOS, OS/2, PC MOS/386, UNIX, XENIX, Dr. DOS, Concurrent DOS 386

$2395

HD	MONO 14"	Super VGA Color 1024x768	Super VGA 1024x768 Non-interlaced
120MB	$2,495	$2,795	$2,998
200MB	$2,745	$2,998	$3,198

EXCEL ISA 33MHz 486

- Landmark Speed = 165
- **105 MB H/D** (16ms)

w/128KB Cache

- 2 Serial, 1 Parallel, 1 Game Port
- Real Time Clock
- 230W Power Supply
- Vertical case holds 6 drives
- Supports MS-DOS, OS/2, PC MOS/386, UNIX, XENIX, Dr. DOS, Concurrent DOS 386

- 1 MB RAM On-board, Expandable to 32 MB
- 1.2 or 1.44 MB Floppy Drive
- 1:1 Interleave Hard/Floppy Disk Controller

25 MHz HD	MONO 14"	Super VGA Color 1024x768	Super VGA 1024x768 Non-interlaced
105MB	$1,398	$1,635	$1,775
120MB	$1,425	$1,669	$1,805
200MB	$1,665	$1,898	$1,998

$1298

EXCEL 40MHz 386 w/128K Cache

- **40 MB H/D (CONNER)**
- 1 MB RAM On-board, Expandable to 32 MB
- 1.2 or 1.44 MB Floppy Drive
- 1:1 Interleave Hard/Floppy Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- Real Time Clock
- 230W Power Supply
- Vertical case holds 6 drives
- Supports MS-DOS, OS/2, PC MOS/386, UNIX, XENIX, Dr. DOS, Concurrent DOS 386

$769

HD	MONO 14"	VGA Color	Super VGA 1024x768
40/65MB	$879/945	$1,059/1,125	$1,119/1,165
105MB	$1,039	$1,225	$1,255
120MB	$1,065	$1,265	$1,298

EXCEL 33 MHz 386 w/64K CACHE

$735

- Landmark Speed = 56 SI = 41
- 1 MB RAM Expandable to 32 MB;
- Socket for 80387 & Weitek Math Co-Processor
- 1x32 Bit, 5x16 Bit, 2x8 Bit Slots
- Real Time Clock/CMOS Memory w/Battery Backup
- 1.2 or 1.44 MB Floppy Drive

- **40 MB H/D (CONNER)**
- 1:1 Interleave Hard/Floppy Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 230W P/S Syst. Case Holds 5 Driv
- 101 Key Enhanced Keyboard

HD	MONO	VGA Color	Super VGA 1024x768
40/65MB	$835/898	$999/1,065	$1,045/1,109
105MB	$998	$1,185	$1,245
120MB	$1,025	$1,215	$1,295

System Board:

386SX-16MHz	$185
386-25 MHz	$295
386-40 w/64K Cache	$415
386-33 w/64K Cache	$399
486-33 w/128K Cache	$775
EISA 486-33 w/256K Cache	$1,495

Drives:

SONY CD ROM	$395
TEAC 1.2 MB	$59
TEAC 1.44 MB	$59
65MB H/D	$230
80 MB H/D	$275
105 MB H/D	$315
120 MB H/D	$345
200 MB H/D	$565
320 MB H/D	$1,135
120 MB Tape Backup Dr	$285
250 MB Tape Backup Dr.	$365

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16 Bit VGA Card	$65
14" Mono Monitor	$115
14" Mono VGA Monitor	$145
VGA Color Monitor	$245
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Mini AT Case w/PS	$85
101 Enhanced Keyboard	$38
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FAX/Modem (9600/2400) (Send/Receive)	$115
All Shareware	$3

EXCEL 25MHz 386

- Landmark Speed = 34.5 SI = 29.5 (w/Memory Interleave)
- 1 MB RAM Expandable to 8 MB On-Board
- Socket for 80387
- 1x32 Bit, 5x16 Bit, 2x8 Bit Slots
- Real Time Clock/CMOS Memory w/Battery Backup
- 1.2 or 1.44 MB Floppy Drive

- **40 MB H/D (CONNER)**
- 1:1 Interleave Hard/Floppy Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 230W Power Supply & Case Holds 5 Drives
- 101 Key Enhanced Keyboard

$625

HD	MONO	VGA Color	Super VGA 1024x768
40/65MB	$725/790	$905/970	$955/1,015
105MB	$875	$1,055	$1,099
120MB	$935	$1,109	$1,155

EXCEL 16MHz 386SX

- Landmark Speed = 22 SI=21
- 1 MB RAM On Board Expandable to 8 MB
- 1.2 or 1.44 MB Floppy Drive

- **40 MB H/D (CONNER)**
- 1:1 Interleave Hard/Floppy Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101 Key Enhanced Keyboard
- 200W Power Supply & Case Holds 5 Drives
- Real Time Clock W/Battery Backup
- Socket For 80387SX

$549

HD	MONO	VGA Color	Super VGA 1024x768
40/65MB	$649/718	$828/895	$869/934
105MB	$799	$965	$999
120MB	$835	$1,025	$1,055

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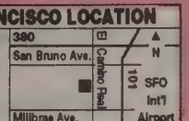

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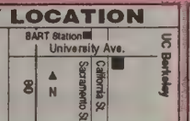

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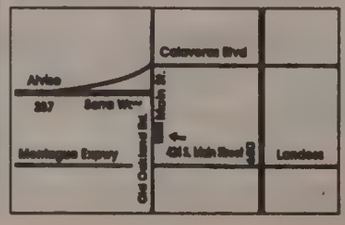

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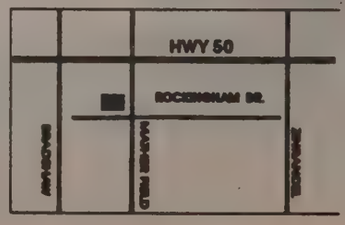

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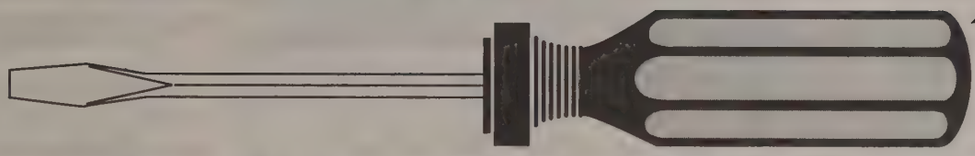

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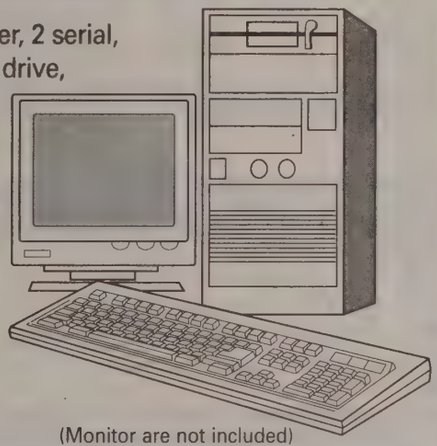

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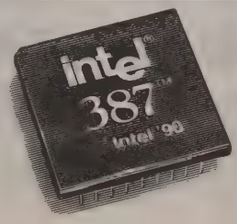

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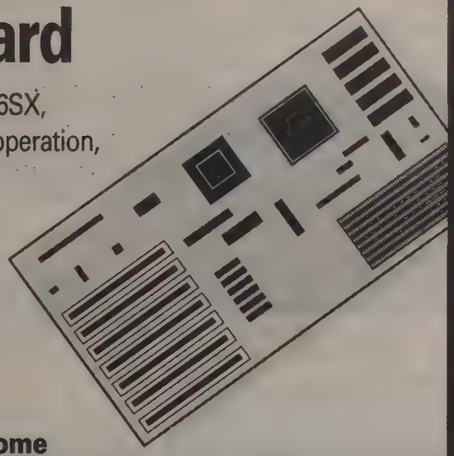

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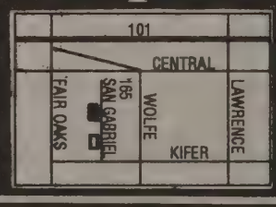

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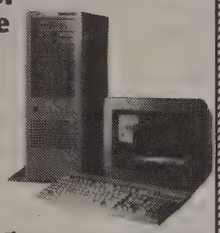

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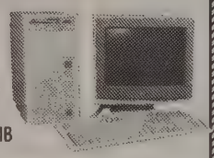

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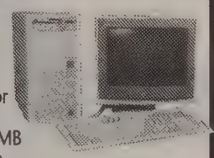

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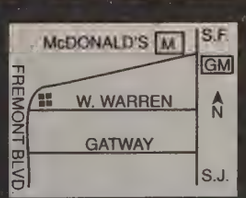

MICROMARKETPLACE

Multimedia: Not Ready For Prime Time?

Market Remains Unconvinced

BY PAUL HOFFMAN

1992 is sure to be the year of multimedia, but it may also be the year in which multimedia is shown to be the emperor without any clothes.

All of the factors are right for 1992. The hardware is there. The software is there. The standards are there, and companies are even adhering to them. Too bad that there are so few consumers who want to spend the money on it.

Defining multimedia is a bit difficult. Its normal definition, combining sound, animation, text, and graphics, seems a bit exciting relative to what you can currently get on regular PCs. The biggest problem is that most PCs are used in business, and, to date, no one has come up with any good use for multimedia in business other than training. Almost all of the multimedia titles available are for home use, such as entertainment or education.

Businesspeople are not concerned with training. Sure, there is a huge need (especially in this country) for training that helps keep workers in step with new technologies. However, few companies have any serious investment in training, particularly computer-based training. The few companies that have committed to computer-based training and therefore multimedia, such as American Airlines, get talked about over and over in the trade press, as if the Fortune 500 really consists of just ten companies. Few companies have actually implemented computer-based training for anything other than how to use computers.

WHO NEEDS MORE THAN ONE MEDIUM ANYWAY?

If you use any of the popular PC word processing programs, you already have access to the basic form of multimedia: You can include pictures with your text. Today, that seems almost rudimentary, but until the Macintosh became available in 1984, that was considered a specialty item, not a mainline word processing feature. Since 1985, all major word processors have allowed you to put graphics in your text, even if you couldn't see them on the screen.

In the past six years, however, only a small percentage of word processor users have found much use for graphics in their writing. If you eliminate the people who use graphics instead of getting letterhead printed on stationery, you are hard-pressed to find anyone who uses graphics in text regularly. Yet word processing is the most common task for most computer users. If they can't think of any use for such a simple medium as graphics, what is the likelihood that they'll want to use animation or sound?

Text-and-graphics is the most popular "bimedia," followed at a great distance by text-and-sound. Apple has pioneered making sound input and output part of the standard setup for Macintoshes. All PCs have speakers, but you can't get good sound out of a PC with any consistency since there are no standards as to how the speaker can be driven. Because of this, few PCs have any voice input either. Not that Apple has been all that successful with text-and-sound.

By far, the most popular use of sound has been to make humorous beep noises. The most popular nonentertainment use of sound has been voice annotation, such as leaving audible messages on a piece of writing. People who have tried this have found it an almost totally useless experience. Hearing a message takes longer than reading it in almost all cases, and if the message is long, you have to play it again instead of rereading it. Leaving a voice message is also much more difficult than writing one, since editing sound is inherently more difficult than editing text.

Regardless of the cost (and multimedia is incredibly expensive), it just won't seem useful to people who can't even use the simple bimedia tools that they already have.

THE PRODUCTION/CONSUMPTION PROBLEM

Microsoft's Multimedia PC (MPC) standard is based on a regular PC with 2MB of RAM, a 30MB hard disk, a 3.5" floppy, a sound board, a VGA display, a CD-ROM reader, and Windows 3.0. None of those requirements is particularly difficult to handle, but the weak link is the CD-ROM drive. Even in quantity, CD-ROM drives are quite expensive, and they are still incredibly slow. Most multimedia software titles are being distributed on CD-ROM for the simple reason that they are much too large to fit on even a dozen floppies.

With only 30MB of hard disk space, multimedia machines are designed around the concept of the user getting information from the computer but not putting anything into it. This, of course, goes

The Tandy machine lists at $5500, the IBM at $6000. Yes, that was a collective gulp you heard. Someone in the marketing department forgot to ask, "Who would pay over $5000 for a computer that will mostly be used for watching, not creating?" Or, "Will someone who is hesitant to spend $200 for a Nintendo set for the kids spend $5000 for a computer that they suspect the kids will use for ten hours a year?"

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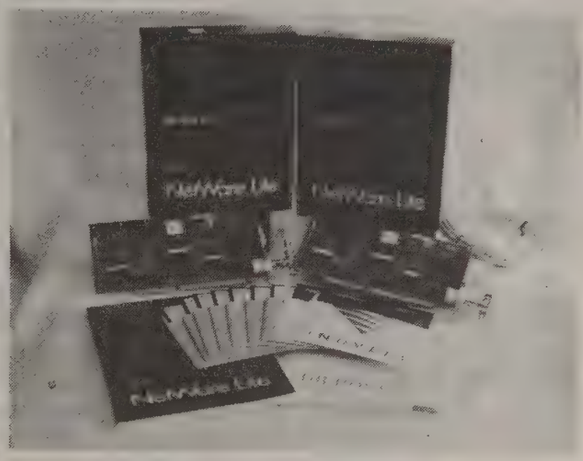

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against what most people have come to expect from their computers. If your only interaction with it is to consume information and to choose the information you consume, a multimedia PC isn't really much different from a television. Except that it costs nearly twenty times more.

Until a few years ago, many computer industry executives were betting that many people would use multimedia as a creative medium. They would maybe put together their own animation, maybe compose music, and so on. The market summarily thumbed its nose at that idea. The only multimedia production that caught on was in preparing lectures and presentations using glorified slide production systems like Macromind's Director software. Even in that case, the software's capabilities so far outstripped what the user wanted to do, companies like Macromind found a good market in low-end packages.

Let's face it: Businesspeople don't like to create much. It is intimidating enough to have to write letters and reports; the last thing many of them want to do is "art" or "music." Fewer than 10% of PC users are inclined to do much more than incredibly simplistic art (if they do any at all), and it is usually based around text and very basic shapes and colors. Asking them to learn about animation and music is out of the question. So the multimedia people decided that the future of multimedia laid not in having the users create things, but in having fun with receiving multimedia.

This decision dovetailed nicely with the maturing of the CD-ROM market. CD-ROM players were dropping in price, although not as fast as PCs themselves. Many software companies had made early investments in the CD-ROM market and had a few titles out, some of which could be called multimedia if you squinted real hard and sort of turned your head a bit. Microsoft had dumped millions of dollars into CD-ROM titles that, although they were some of the best sellers, no one wanted. The best-selling CD-ROM titles were selling less than the worst-selling business software. Something had to be done, and Microsoft was in a position to do it.

So now the standard for multimedia is a CD-ROM based system. Fine, except now you can't do much in the way of creating your own multimedia (if you had wanted to anyway). You must be content to sit and watch, something that many Americans enjoy doing every night.

And then the computer industry, sure that multimedia was the coming thing, noticed that last niggling detail: cost.

IF MONEY GREW ON TREES, YOU'D STILL NEED A BIG TREE

In the past few months, a few of the major players in the market have released their first multimedia PCs to many hurrahs in the PC press. Tandy was one of the first out the gate with the Tandy 4033LX (ooh, exciting name!), a speedy, fully equipped multimedia PC that conforms to Microsoft's standards. IBM has a similar machine, the PS/2 Ultimedia Model M57 SLC (another really jazzy name, don't you think?). They will run all twenty or so multimedia titles that are available to date, and you should expect as many as one hundred to be released in 1992.

Oh yeah, the price. The Tandy machine lists at $5500, the IBM at $6000. Yes, that was a collective gulp you heard. Someone in the marketing department forgot to ask, "Who would pay over $5000 for a computer that will mostly be used for watching, not creating?" Or, "If it's not very useful in business, will many home users want to pay twenty times more for one of our computers than for a television that has a better screen, better sound, more choices in entertainment, and one-fiftieth of the operating instructions?" Or, "Will someone who is hesitant to spend $200 for a Nintendo set for the kids spend $5000 for a computer that they suspect the kids will use for ten hours a year?"

Yes, these systems are horribly expensive. You may be lucky enough to have most of the basics you need in your home computer, but you will still have to shell out around $600 for the CD-ROM drive and the sound card. And you get to install them yourself, a task that few home users look forward to.

So, let's assume that you have in fact spent the money to buy such a system. The next thing you need is software. As you have probably guessed, multimedia software is priced like the systems: out of proportion to its worth. Almost nothing is priced under $50, and most is well above that. Compton's Multimedia Encyclopedia lists at $900, yet it is much harder to use than a standard encyclopedia. Microsoft's first title, *Multimedia Beethoven*, costs a mere $80. Brøderbund will offer kid's stories for $50 apiece.

In other words, even the cheapest multimedia title costs more than a full month of cable TV with all the premium channels and probably one pay-per-view concert thrown in for good measure. You can be sure that a single multimedia title won't keep you busy three hours a night for a month, either. In fact, it is unlikely that a single multimedia title will keep you busy as long as a Nintendo title that costs less than a third as much. For that matter, you could buy a Nintendo machine and 150 games for less than the cost of a multimedia PC without any software.

By far, the most popular use of sound has been to make humorous beep noises. The most popular nonentertainment use of sound has been voice annotation, such as leaving audible messages on a piece of writing. People who have tried this have found it an almost totally useless experience.

IT WILL NEVER BE TELEVISION

So, other than a lack of audience and high price, what might get in the way of multimedia this year? It seems like the computer magazines have forgotten that there might be competition with multimedia, namely television. Television is already established, costs very little, the "software" (programs) is usually free, and it is easy to use. Past that, changing programs is much faster, and the production values are much higher.

It may seem a bit harsh to compare a technology as nascent as multimedia to something as mature as television, but you can be sure that all potential consumers will. If they cost about the same or had the same kind of programs, there might be some real interest in multimedia, but with the costs so out of kilter, few people would want to pass up their favorite programs for a multimedia PC. Television offers immediate response, up-to-the-minute news (both real news and news that is barely disguised entertainment), and fixed costs. Even if you're too highbrow to watch much TV, you sure aren't going to be interested in many multimedia titles.

The companies behind multimedia correctly determined that most people, at least in this country, would rather watch than do. Their answer to that fairly obvious phenomenon, multimedia, is totally inadequate. Running a PC is much more "doing" than most regular people want, especially when what they get to watch costs so much and is so cheesy compared to what they already watch, namely television. Unless multimedia computers and software drop in price by 90%, they will never get far in American homes or businesses. ■

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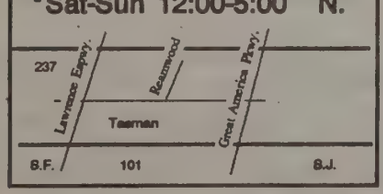

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Your First Computer

About Utilities In General, And Norton In Particular

BY MIKE MARKOWITZ

"When I started at the Sanitation Department, I didn't know a sewer from a hole in the ground."

—Norton (Jackie Gleason's pal on "The Honeymooners," c. 1953)

In the real world, utilities are things like water, electricity, gas, and sewers, which we take for granted until the bill arrives. In the unreal world of software, utilities are programs that we take for granted until Something Bad happens. "Something Bad" is typically a system crash, or a cryptic message from your computer's operating system on the order of, "I can't read this disk, do you want me to format it?"

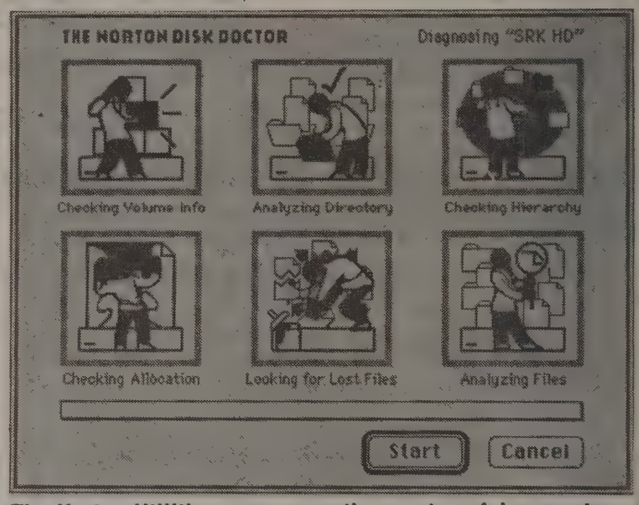
Let me vastly oversimplify a topic of horrendous complexity (this, after all, is a writer's job). Computer problems fall into two main categories. "Hard" failures happen when an electronic or mechanical component goes bad. The cure is to replace the offending component after a technician at $75/hour has figured out which one is to blame. "Soft" failures happen when one digital bit (or a whole lot of them) gets written or read incorrectly. Hard failures are quite rare; soft failures are rather common. The solution—or even better, prevention—is often found in a disk utility program. The least reliable component of any computer system is generally the user, and a good utility program also offers some insurance against inevitable human errors.

Utility programs are also written to do things that were left out or forgotten by the programmers of a computer's disk operating system. For example, the Macintosh has a built-in function to "capture" monochrome screen images (holding down Command-Shift-3 saves the current screen as a MacPaint file), but to capture a color screen you need a graphic utility. DOS computers have a built-in "Print Screen" button for text, but to capture and print any kind of graphics screen, you need a utility.

In the DOS world, utility programs can be ordinary applications (things that usually have a .COM or .EXE filename extension) or they may be TSRs ("terminate-and-stay-resident" programs) that grab a chunk of memory and reside quietly in the background until you summon them with a keystroke—or until they conflict with other TSRs and crash your system. Mac utility programs can be applications, desk accessories, control panel "devices," or INITs—those strange and wonderful critters that lurk in the System folder, waiting to conflict with other INITs and crash your system.

It's not supposed to be fun. It's a computer.

There are many other kinds of specialized utility programs, for example, virus detection and eradication programs, or file conversion and translation programs. Many excellent utility programs for Apple II, Mac, IBM PCs, and other systems are public domain or shareware available from user groups, online services, or bulletin boards. But a good disk utility is still something you need to go out and buy.



The Norton Utilities are among the most useful computer tools available.

THE NORTON UTILITIES

Soon after Symantec Corp. acquired Peter Norton Computing on May 14, 1990, the choice of a disk utility program was greatly simplified for MS-DOS and Macintosh. Now, if it says "Norton Utilities" on the box, it's probably what you need. The closest competition comes from Central Point Software, with PC Tools (v7.1) and Mac Tools Deluxe (v1.2).

The Norton Utilities for DOS ($129 list) is now up to v6.0, which I haven't seen yet. This description is based on v5.0, which I have used extensively. The package is actually a collection of programs, which can be run from a well-designed menu (which supports use of a mouse) or directly from the DOS command line. When completely installed, the programs take up about 2.5MB of disk space.

Some of the most useful programs are:

•**Disk Doctor II**—diagnoses and corrects a wide variety of disk problems

•**UnErase**—recovers deleted files (if the data is still physically present on the disk)

•**Disk Editor**—an advanced technical utility that lets a user view and change any information on a readable disk

•**SpeedDisk**—optimizes performance by rearranging disk files. As files are created, modified, and deleted over time, a disk tends to become "fragmented," with portions of a single file written in different physical locations, wherever DOS could find free space. Fragmented files take much longer to load or save, slowing down the computer.

•**Diskreet**—encrypts files and provides password protection to confidential areas of a disk. An encrypted file is "scrambled" in a way that can only be decoded if the correct password is entered. You have the choice of using a fast Norton proprietary encryption method, or the US Government-certified Data Encryption Standard (DES). Because the program implements this standard, the box carries a notice that "US State Department license required to export this product outside the US and Canada." If our enemies encrypt their data disks, the New World Order could be imperiled.

•**System Information**—provides detailed reports on your system's

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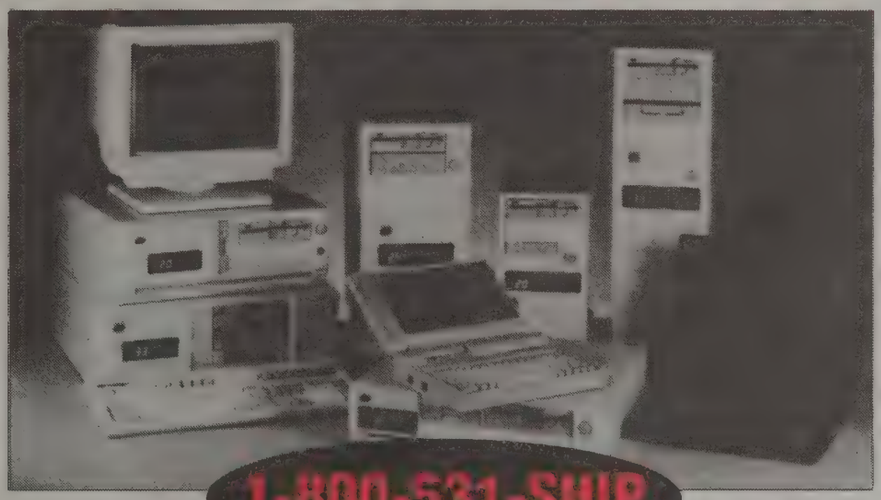

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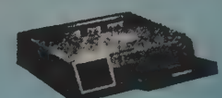

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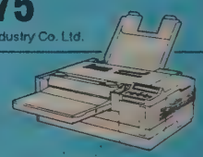

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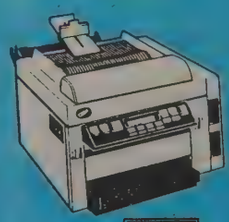

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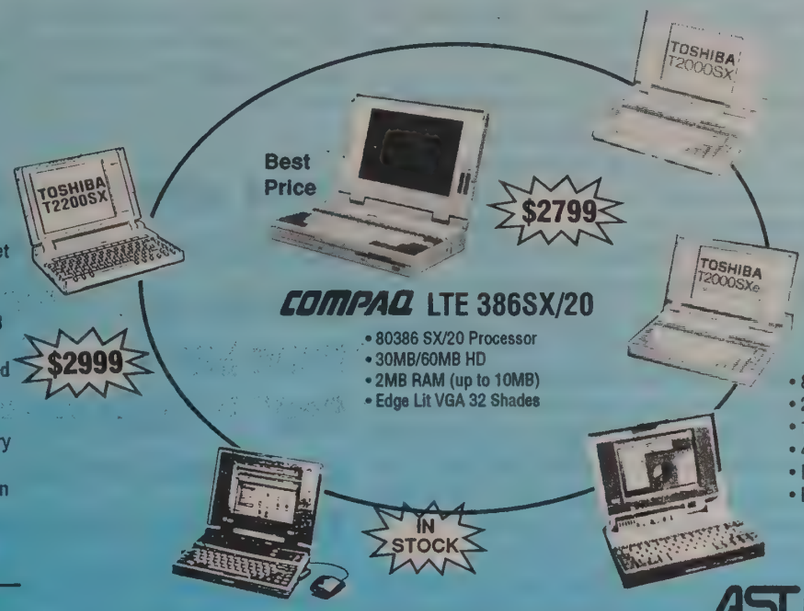

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hardware, memory usage, and performance. The "Norton SI" index, which rates an IBM PC-XT as 1.0, and a Compaq 386/33 as 28.7, is a widely used measure of overall system performance. Documentation is exceptional, with a 336-page softcover user guide, quick reference card, Command Reference booklet, and a 208-page "Disk Explorer" guide which lucidly explains some of the technical background behind MS-DOS disk formats.

Norton Utilities for the Macintosh ($129 list) offers many of the same features, with the point-and-click Macintosh interface. The manual is short but very clear, and telephone technical support is said to be excellent.

Apple's introduction of System 7.0, a major revision of the Mac's operating system, makes many earlier Mac utility programs obsolete. Norton's v1.1 is System 7 compatible, but the package contains a number of little utilities that provide features of Mac System 7.0 to users of earlier system software.

Layout Plus, for example, lets you change the Finder's standard font and icon spacing. Norton's **FastFind** desk accessory provides a much faster and more usable way to search for a file than Apple's old Find File desk accessory. **Key Finder** is a DA that displays all the characters in a font. **Directory Assistance** is an INIT that improves the Finder's standard Open and Save dialog boxes, which were always one of the most confusing and unfriendly aspects of the Mac user interface. **DiskLight** is another INIT that flashes a tiny icon on the Mac's Menu Bar whenever a drive is reading or writing. This is particularly useful on Macs like the LC, which have no built-in LEDs to show hard disk activity.

FileSaver is perhaps the most valuable item in the package. It creates and maintains a safe duplicate copy of the critical file and directory information that enables a Mac to access a hard drive. If this information becomes garbled, a Mac often fails to recognize its own drive. FileSaver often makes it possible to recover trashed files (**UnErase** and **Format Recover**). You can tell the UnErase program to recover specific file types, or just files that contain specific words.

Norton's Disk Doctor can diagnose and repair forty-five different Mac disk and file problems. It can also detect (but not correct) some virus infections. There is also a powerful **Disk Editor**, which should probably only be used by programmers who have mastered the first few volumes of *Inside Macintosh.*

The runaway success of Windows and the creeping advance of Mac System 7.0 have created great new opportunities for revising and rewriting all sorts of utility programs. Learning how to use utilities is one of the ways beginners gain confidence and grow into Power Users. ■

RESOURCES:

Norton Utilities
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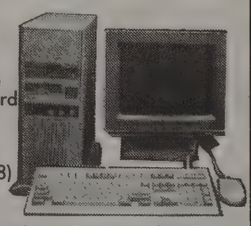

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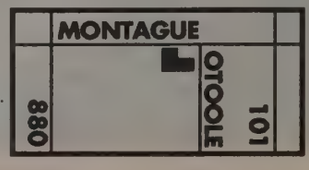

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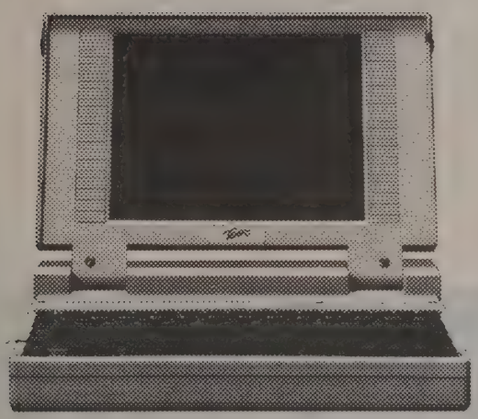

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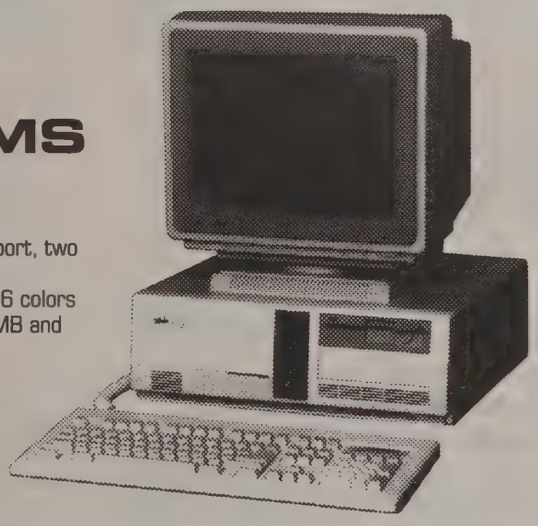

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Maxiswitch 101 Key	45

Misc.

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Teac 360K/1.2M	$60/60
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Teac/Toshiba 3.5" 1.44 MB	60

Printer

Panasonic KX-P 1180 w/Cable	$155
Panasonic KX-P 1123 w/Cable	215
Panasonic KX-P 1624 w/Cable	355

Interface Card

Mono Graphic Card	$20
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Orchid Pro Designer II S w/1 MB	CALL
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AT M I/O (2S, 1P, 1G)	29
WA3 FD/HD Controller	65
1:1 FDC/HDC (MFM)	65
DTC 7280 1:1 FDC/HDC	65
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DTC 6280 ESDI	135
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386-25 MHz	285
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Hard Disk

Conner 3000 40 MB	$175
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Western Digital 85 MB (18ms)	275
Quantum 85 MB 15ms	275
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Conner 30104 120 MB (18ms)	340
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Maxtor 7120A 130 MB 15ms	340
Conner 210 MB (16ms)	560
Quantum 240 MB	570
Conner 3504 510 MB 12ms	1250

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2400 Baud (Int)	$65
2400 Baud (Ext)	95
Fax Modem (4800 FAX, 2400 modem)	85
Fax Modem (9600 FAX, 2400 modem)	95

Monitor

Hyundai Mono	$75
14" Flat Screen	95
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NEC 3FGX/4FGX	645/775

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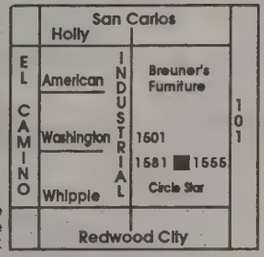

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Prestige proudly presents its line of High Performance Systems for 1992

Compare **power**, compare **performance** and then – compare the **price!**

Power, performance and price aren't the only reasons to buy your next system from Prestige. Here are others:

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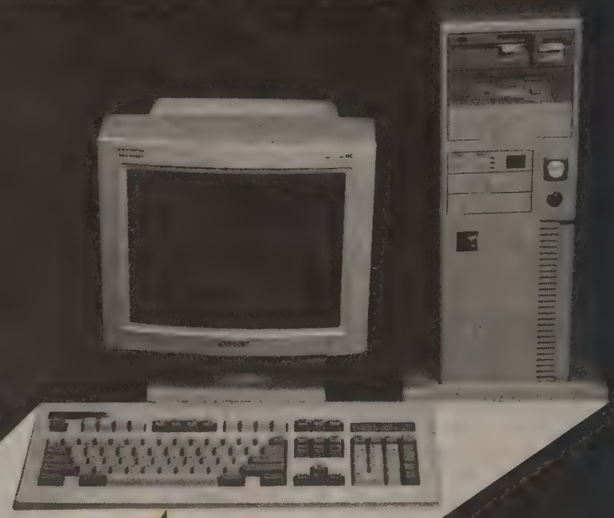

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512K SVGA Card
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All Systems Include:
Mother Board & CPU • 1:1 2FD 2HD IDE Controller • Enhanced case & power supply 2 Serial, 1Parallel, 1 Game Port • 101 Enhanced Keyboard • MS DOS 5.0 or 4.01 Package • 1.2 or 1.44 Floppy Drive • Super VGA Monitor (1024 x 768, 28DP) • Add $100 for non-interlace SVGA Monitor

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120MB 16MS	345
130 MB 15MS	355
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NEC 3FGX 4FG	459 649 795
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Not every brand in every system.

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Online Systems

Which One's For You?

BY BROCK N. MEEKS

There's an old adage that in order to avoid conflict you don't discuss sex, religion, or politics. But in my life experience, I can safely add two more items: Don't tell anyone how to raise their kids and never tell someone that the online system they use is not as good as your "online home."

Online services are, for all intents and purposes, matters of personal choice—very personal choice. Sometimes people stay with a system because it's the first one they ever log onto; online loyalties die hard.

Sometimes the choice of an "online home" boils down to what can only be described as "feeling." On a huge system such as CompuServe, the system can feel impersonal; on a system such as Delphi, there is more the feeling of a small town.

The article that follows is intended to provide you with a glimpse at some of the "other" systems that are out there. A brief glimpse is all that's possible here; surely, a book could be written about any of these systems. Indeed, for several systems there are books dedicated just to "getting the most out of" them.

FIRST OF A SERIES

How do you choose among these systems? Well, you can always armor-plate your self-esteem and go asking for suggestions, or you can follow your instincts, bolstered by the words of reviews like this one, and just choose. If you don't like a system, you can always change your mind...in a virtual sort of way.

COMPUSERVE, INC.

5000 Arlington Centre Blvd.
PO Box 20212
Columbus, OH 43220
800-848-8199

CompuServe is the cash cow of the online industry. Forget those rumors you've heard that its parent company, H & R Block, has it on the auction block. CompuServe made money—lots of money—for Block; the CEO of CompuServe draws a paycheck in the mid-six figures. Yeah, it's doing all right.

CompuServe Information Service (CIS) is widely derided among the online community as being too expansive and too expensive, hence its oft-used "nickname" CI$. But it's all a matter of perspective.

CIS is the flagship of the US videotex industry. And it's proven there is strength in numbers. In fact, just a few years ago CIS acted like its bigger Wall Street brothers when it gobbled up its closest competition: The Source. (These were the pre-Prodigy days, and The Source was then the second largest commercial online system in number of subscribers.)

If CIS were a city, it would be New York. There is something here to suit anyone's hobby, interest—or fetish, for that matter. For example, transsexuals have their own support forum; virtual cross-dressers often meet online in the "CB" conference, CIS's real-time conferencing section.

Hundreds of Special Interest Groups (SIGs) break CIS into smaller boroughs, much like you'd expect to find in New York. Each SIG has its own flavor. When you log into the Journalism forum you'll find hard-core journalists talking about current events, the newspaper (or broadcast) markets, and the ethics of revealing the names of rape victims. In the Photography forum you'll find people discussing ways to shoot landscapes, what the best film speed is to use for sporting events, and whether or not the latest round of automatic 35mm cameras are taking the skill out of being a photographer. All this is to say that "you get what you expect" from these SIGs.

Within each SIG is the file database. This is where you can pan for online gold and find it. In these file databases, subscribers park their shareware programs. And there are literally thousands of them online. The downloading of files is one of CIS's biggest revenue generators. Searching through the databases used to be time-consuming and frustrating, but within the last year or so CIS implemented the "file finder." Using FF you can simply type in the name of a file, or keyword; the FF software searches every file database for a match. Not only does this little gem work well, it works fast. It's a real plus for those not wanting to wade through individual SIGs or get bogged down slogging their way through hundreds of irrelevant files.

The SIGs operate with sequential message storage software, which reminds you of early-model BBS software. The SIGs rack up hundreds of messages a day and a message seldom lasts more than 24 hours before it "scrolls off" the SIG message base. It's always been a complaint of mine that CIS never saw fit to incorporate the use of true computer conferencing software. But as one CIS executive told me years ago: "People keep logging in and spending money; why should we shell out the money to revamp the system when the customers seem happy enough?" Well, a captive audience and all that...

But even this complaint is no longer valid; when CIS bought up The Source it also brought on board The Source's computer conferencing system software, called "Participate." CIS now widely touts its conferencing software as a "host your own forum" feature. In reality, its where most of The Source "refugees" (those former Source subscribers who "inherited" a CIS membership) hang out.

Besides the "people" side of CIS, there are a host of "services" here, too. You'll find the discount brokerage firms of Quick & Reilly and Max Ule, Inc. here. Analyses of companies and industries are provided by Standard & Poor's Disclosure, Value Line, and the Institutional Brokers' Estimate System.

Several information research services are also found on CIS. IQuest provides a gateway to more than nine hundred additional databases that draw from heavyweight systems such as Dialog, BRS, NewsNet, and Vu/Text. This saves you from having to subscribe to each of these separately. Not only does this save you money, but time as well. IQuest has an easy search system, and you only pay for the items that IQuest finds; if you get no "hits" on your information search, you don't pay. This isn't an option if you search one of these systems individually.

There's a good selection of news services here, too. UPI News, AP, and the *Washington Post* are available online. CIS runs its own daily computer news service called "Online Today" that routinely covers the hottest items in the computing industry (but don't look for any negative coverage of CIS itself).

Of course there's the standard fare of automatic banking, color weather maps, digitized picture gallery of other CIS members, airline ticket reservation, lots of interactive games, and of course, the electronic shopping mall.

Basic connect rate: $6.00/hour (300bps); $12.60/hour (1200/2400bps); $22.50/hour (9600bps). These rates are good twenty-four hours a day. These prices don't include "surcharges," which are found on about 10% of the offerings. (A surcharge is an extra cost above and beyond the basic connect charge.)

Continued on page 113

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THE MACINTOSH® RIGHT NOW REBATE™ IS EASY!

Make your purchase and receive instant credit towards your purchase of Qualifying Apple® Macintosh® Products. The Apple Rebate will be deducted from your final purchase price at the register. You save "Right Now", it's that easy.

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Now the ideal entry level personal computer is more easily affordable than ever. Purchase the Classic 2/40 with 2 MB RAM and 40 MB hard drive, and either an Apple® StyleWriter® or Apple Personal LaserWriter® LS and receive a $125 Instant Rebate towards your purchase.

Macintosh Classic 2/40	**$1199**
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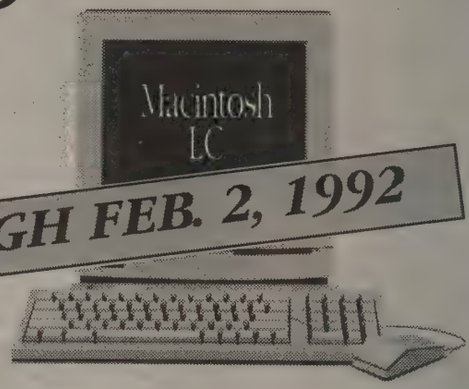
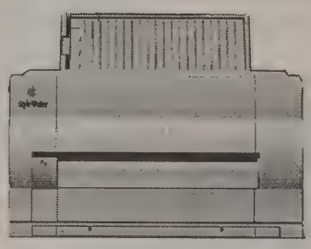


EXTENDED THROUGH FEB. 2, 1992

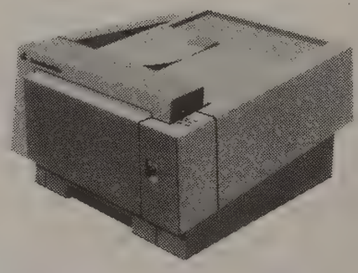
The Macintosh® Right Now Rebate™ means now is the time to purchase the most affordable color solution in the Apple® line. The LC's solid performance makes it an excellent choice for educational and business use. Purchase the Macintosh LC with an Apple 12" RGB Display or a 13" AppleColor™ High Resolution RGB Monitor and either an Apple StyleWriter® printer or and Apple Personal LaserWriter® LS and receive a $350 Instant Rebate from Apple.

Macintosh LC 2/40	**$1699**
Less	**$350**
Monitor extra. Keyboard extra on some models	**$1349 Net***



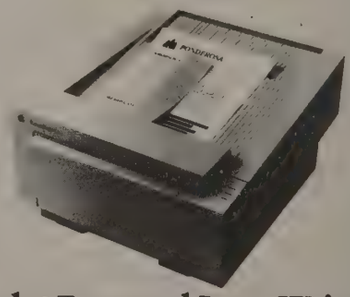
Print in Style

The StyleWriter® exemplifies the ingenuity of Apple® innovation & affordability. Apple brings outstanding laser-like quality results, quiet operation, and space saving compact design for only a fraction of the cost of a laser printer. Compatible with all Macintosh® computers.



Apple® Personal LaserWriter® LS

The new personal LaserWriter® LS printer is the most affordable personal laser printer from Apple®. It's compatible with all Macintosh® computers.



Apple® Personal LaserWriter® NT

The Personal LaserWriter® NT offers individuals and small workgroups affordable, high-quality PostScript® laser printing in a compact design. This printer has a built-in AppleTalk® interface for Macintosh® computers.

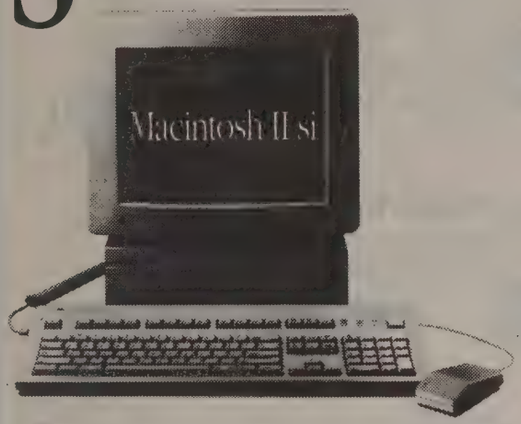
Rebate ends February 2, 1992

*** Rebate applied after sales tax.**

WHOLE EARTH ACCESS

MACINTOSH® RIGHT NOW REBATE™

Save $600 on the Apple® Macintosh® IIsi 3/40



The Macintosh® IIsi has the flexibility to meet your growing demands. Equipped with color and sound capabilities, this member of the modular Macintosh product line comes with 3 MB RAM and a 40 MB hard drive making it an excellent choice for business or educational uses. Purchase the Macintosh IIsi 3/40 with either the Apple® Personal LaserWriter® LS or the Apple Personal LaserWriter NT and receive a $600 Instant Rebate towards your purchase.

Macintosh IIsi 3/40 $2599
Less $600

Monitor and keyboard extra. **$1999 Net***

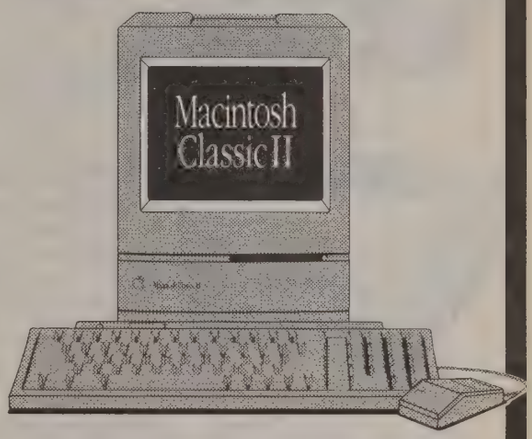
Save $800 on the Apple® Macintosh® IIsi 5/80

The Macintosh® IIsi's powerful 5 MB RAM configuration includes an 80 MB hard drive and a built-in cache for increased performance. System 7 capable, the powerful Macintosh IIsi 5/80 is a member of the Modular Macintosh product line. Purchase the Macintosh IIsi 5/80 with either the Apple® Personal LaserWriter® LS or the Apple Personal LaserWriter NT and receive an $800 Instant Rebate towards your purchase.

Macintosh IIsi 5/80 $3149
Less $800

Monitor and keyboard extra. **$2349 Net***

Apple® Macintosh® Classic® II



The solid performance of the Classic II runs applications up to twice as fast as the original Classic. The Classic II has built-in capabilities for networking and sound and is System 7 capable. Powerful 4 MB RAM, 80 MB hard drive.

$1999

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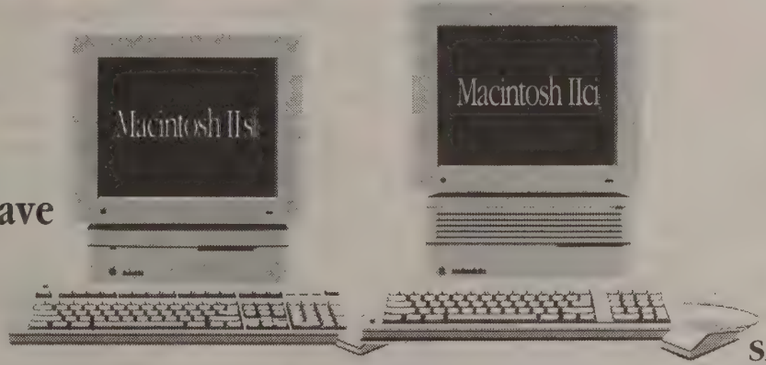

BUY*	SAVE
A Macintosh® IIsi 5/80 computer with an Apple® Personal LaserWriter® Printer	$800
A Macintosh® IIsi 3/40 computer with an Apple® Personal LaserWriter® Printer	$600
A Macintosh® IIsi 5/80 computer	$650
A Macintosh® IIsi 3/40 computer	$500

*Purchase of monitor not required.

* Rebate applied after sales tax.
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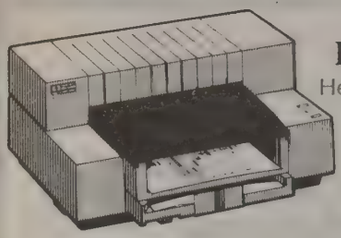
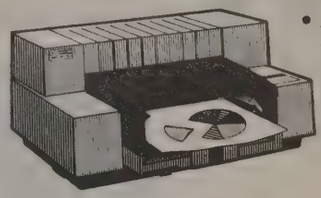


HP DeskWriter Printer

Hewlett-Packard's DeskWriter printer, now AppleTalk® compatible, brings laser-like quality to the Macintosh® line.

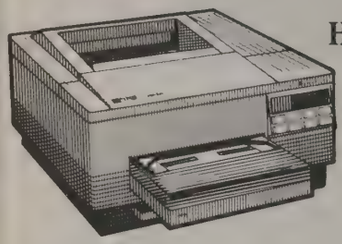
399.



HP DeskJet 500C Printer

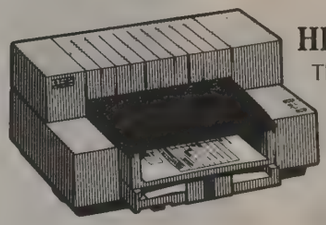
• Affordable laser-quality printing • 300-dpi color printing on plain and transparencies • Supports leading software applications including Windows 3.0 • 3-year limited warranty

729.



HP LaserJet III Printer

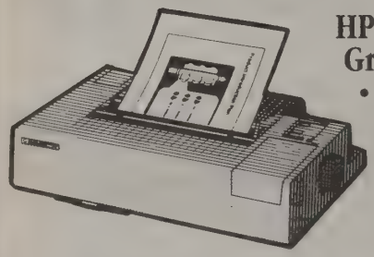
• Now Hewlett-Packard LaserJet Printers are PC or Macintosh® compatible • AppleTalk® compatibility with optional interface • Dependable HP performance



HP DeskWriter C Printer

The new HP DeskWriter C adds color capacity to an already famous laser-quality black output. It's compatible with popular Macintosh® software and your budget.

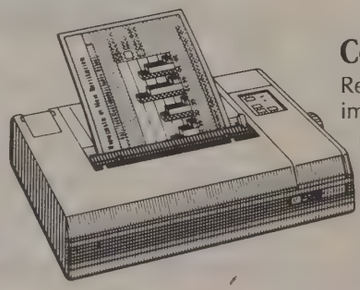
729.



HP PaintJet Color Graphics Printer

• High quality color charts & graphics • PC or Macintosh® compatible • Wide range of software support.

829.



Color Me Brilliant HP PaintWriter

Reports and presentations achieve their greatest impact in color produced by the HP PaintWriter printer. Prints on paper or transparency for maximum versatility. Compatible with Macintosh® color computers.

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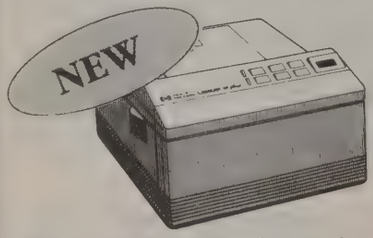
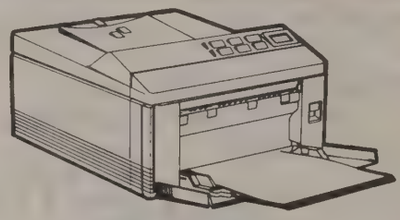


HP LaserJet IIP *plus* Printer

• High-quality, 300 dpi text and graphics • Compact, desktop size • Prints 4 pages per minute • Compatible with all major software packages • Optional 250-sheet paper cassette for dual-bin printing

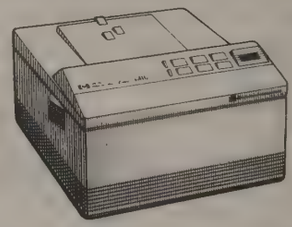
829.



HP LaserJet IIP PostScript Printer

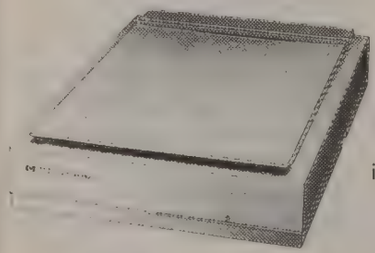
• Mac or IBM compatible • True Adobe® PostScript with 35 typefaces • Built-in Local Talk interface • Easy to use—"plug and play" • Compact, desktop size

1749.



HP LaserJet IIIP PostScript Printer

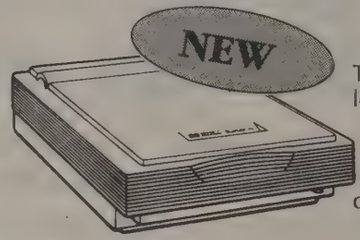
• Resolution Enhancement technology for print quality superior to ordinary 300-dpi laser printing • True Adobe PostScript® with 35 typefaces • Mac or IBM compatible • Built-in LocalTalk interface for easy æplug & play" • Compact, desktop size



HP ScanJet Plus Scanner

• 256 grey scale levels (8 bit) for high-resolution images • Wide range of contrast & intensity control • PC or Macintosh® compatible • Price includes interface.

1149.



HP ScanJet IIc

The new HP ScanJet IIc gives you 256 levels of gray or 24-bit color professional quality documents. Supports IBM AT-compatible PCs, MicroChannel or Macintosh® personal computers.

Starting At 1495.

Price includes interface

WHOLE EARTH ACCESS

EPSON®

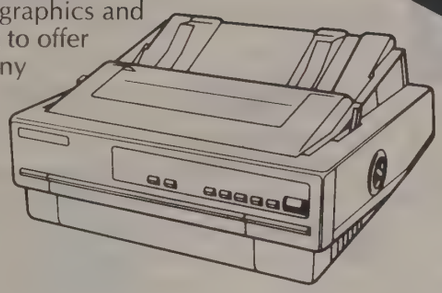
ESC/P2™ EPSON SCALABLE FONTS • ENHANCED GRAPHICS

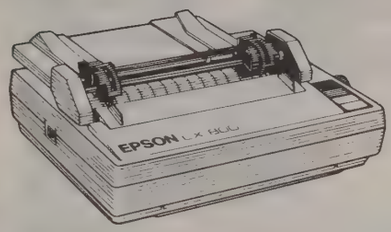
FREE Epson Approved Parana Ribbon With Every Printer Purchase

LQ-570

This new 24 pin printer utilizes scalable fonts, enhanced graphics and advanced paper handling to offer more performance than any printer in its class at an affordable price.

279.

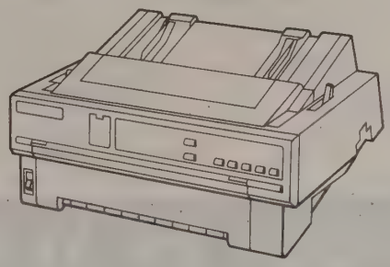




LQ-870

This new 24 pin printer is a major step forward in printer technology with high speed, and high perfor-mance that sets a new industry standard for quality with scalable fonts.

489.



LQ-1170 Wide Carriage Model.....699.

LX-810

- 9 pin • SmartPark™ paper handling
- 200 CPS super draft
- 30 CPS NLQ
- High resolution graphics.

159.

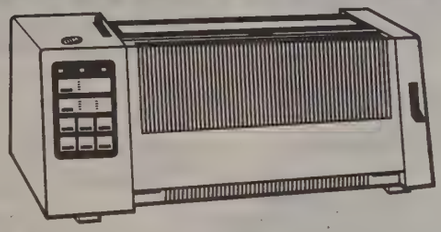
NEW PRINTERS FROM IBM®

IBM® PPSII 2380

IBM introduces 2 new 9 pin printers that can print crisp, six -part forms and thick paper stock with no problem using straight paper path technology. Solid and reliable, these printers perform flawlessly.

2380 Narrow Carriage .....349.

2381Wide Carriage.....499.



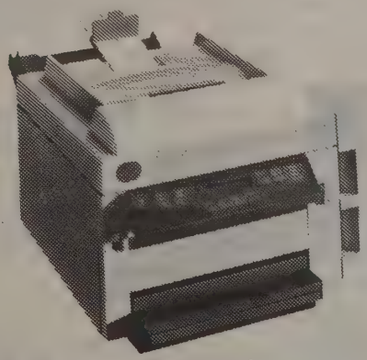
IBM® PPSII 2390

IBM introduces 2 new 24 pin printers for letter quality printing at high speed. Durable and reliable, these printers feature a straight through paper path with multiple feed options.

2390 Narrow Carriage .....359.

2391Wide Carriage.....509.

IBM Business Partner
Authorized Advanced Products Dealer



IBM® LaserPrinter 6

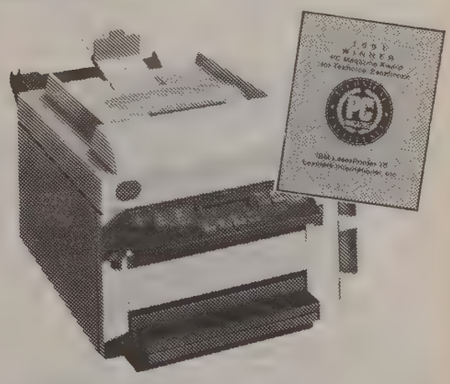
6 pages per minute

Model 4029020

1495.

IBM® LaserPrinters 6 & 10

At 6 or 10 pages per minute with Print Quality Enhancement and Scalable Fonts, these printers outperform the rest. Paper handling includes a 200 sheet input tray with optional 500 sheet drawer and 75 piece envelope feeder. When you add the optional PostScript™ and 4 MB of memory this printer provides the most affordable 600 x 600 dots per inch technology available today. HP PCL4 compatible and optional PCL5.



IBM® LaserPrinter 10

10 pages per minute

Model 4029030

1795.

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SAN FRANCISCO
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IBM® PS/1™ 386SX

The new IBM PS/1 386 SX achieves the exceptional. A home machine with the power of a business model, this computer operates at 16 mhz with 2 MB's of RAM. A 40 MB or 80 MB hard drive stores all your essential data. Comes complete with VGA PhotoGraphic™ color display, keyboard, mouse and built in 2400b modem. Plus you get IBM DOS, Microsoft Works® and 3 months FREE Prodigy for on line home shopping, banking, travel arrangements and more.

STARTING AT 1295.

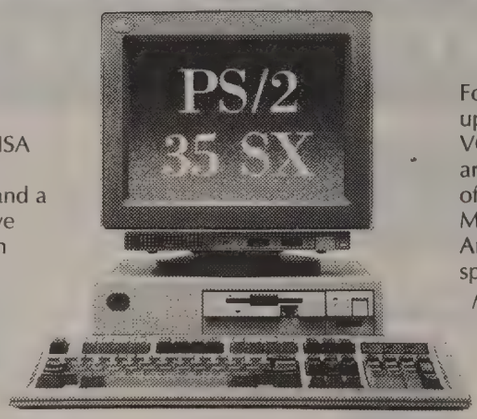
PS/2 NOW AVAILABLE IN ALL STORES

IBM® PS/2® 35sx

Based on an 80386sx processor operating at 20 Mhz, this latest model IBM PC offers the classic ISA buss allowing easy upgrades at reasonable cost. 2 MB of RAM and a fast 17 MS 40 MB IBM hard drive insure top performance. VGA on board.

Monitor extra.

1695.

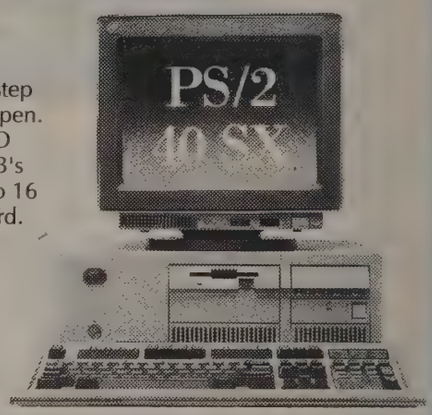


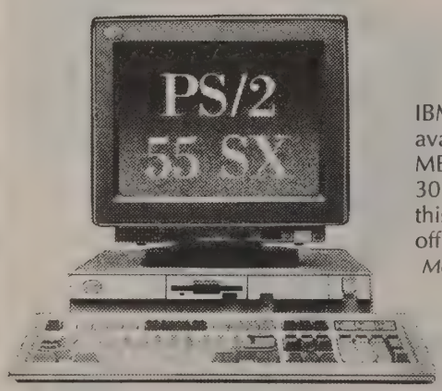
IBM® PS/2® 40sx

For more expansion capabilities step up to the PS/2 40sx with 5 slots open. VGA hard drive controller and I/O are all on the motherboard. 2 MB's of RAM come standard with up to 16 MB maximum on the system board. An 80386sx operating at 20 Mhz speeds every operation along.

Monitor extra.

1795.





IBM® PS/2® 55sx

IBM's best selling PC is now available at a very special price. 2 MB's of RAM, VGA on board and a 30 MB to 80 MB hard drive make this system a hot home or home office unit.

Monitor extra.

STARTING AT 1595.

IBM® PS/2® L40sx

Full featured, fast and flexible, the L40sx is IBM's new no compromise notebook PC. 2 MB of RAM expandable to 18 MB , VGA display, 20 Mhz 80386sx processor and 60 MB hard drive make this system an outstanding choice for the business traveler.

2999.

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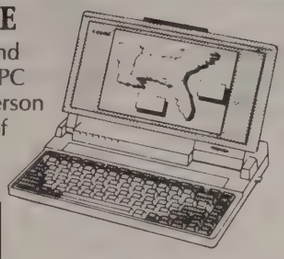
WHOLE EARTH ACCESS

TOSHIBA *Quality Dealer*

TOSHIBA NOTEBOOKS

Toshiba T1000 SE

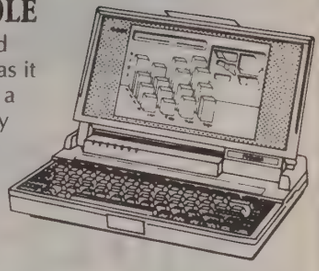
Toshiba's affordable and easy to use Notebook PC for today's business-person on the move. Plenty of comfortable features.



599.

Toshiba T1000LE

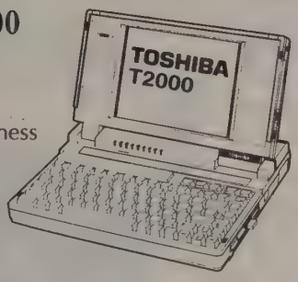
Toshiba's 6.5 pound notebook PC that has it all. A 20MB HDD, a 3.5"/ 1.44MB floppy drive, a terrific display and keyboard.



1399.

Toshiba T2000

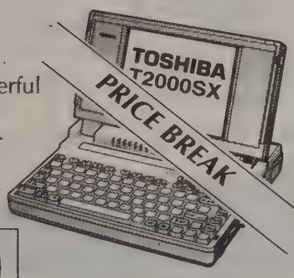
The T2000 is Toshiba's most affordable VGA notebook for business and professional users.



2099.

Toshiba T2000SX/40

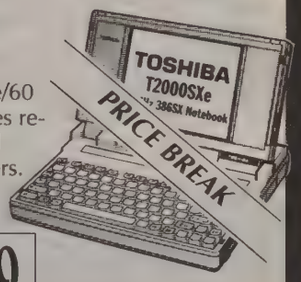
- Toshiba's most powerful notebook computer
- High performance—386SX™ processor
- Super ergonomics—only 6.9 lbs.



2199.

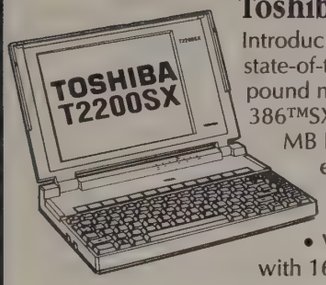
Toshiba T2000SXe/60

The Toshiba T2000SXe/60 offers advanced features required by business and professional power users. Time now to replace your desktop.



2699.

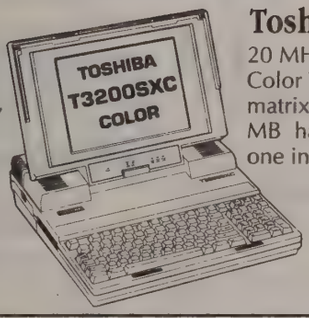
TOSHIBA DESKTOP REPLACEMENTS



Toshiba T2200SX/40

Introducing the T2200SX—state-of-the-art features in a 5.5 pound notebook format! • 20 MHz, 386™SX processor • 40 MB or 60 MB hard drive• 1.44 MB diskette drive • 2 MB RAM expandable to 10 MB • VGA display with 16 gray scales

3199.



Toshiba T3200SXC

20 MHz 80386™SX CPU. Color TFT-LCD active matrix VGA display. 120 MB hard disk drive. See one in our Berkeley Store.

LIMITED STOCK

LAPLINK PRO

LapLink Pro is the ultimate laptop file transfer utility available. Serial and parallel cables included.

109.

EVEREX
EVER for EXcellence

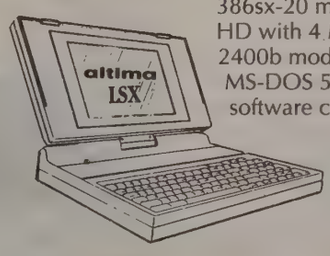
TEMPO

"Deskless" Computing

Low in weight and high in power the Tempo LX 20 Mhz 386sx notebook frees you from the bonds of your desk. Comes complete with VGA graphics, 1 MB RAM expandable to 5 MBs and a 60 MB hard drive.

2195.

altima LSX



Award Winning

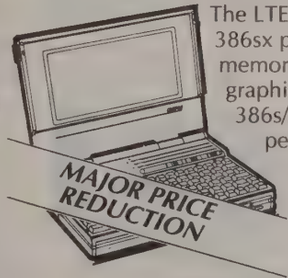
386sx-20 mhz, 60 MB HD with 4 MB RAM, 2400b modem/send fax, MS-DOS 5.0 and special software collection consisting of six titles.

2895.

COMPAQ

COMPAQ LTE 386s/20

Power without the Pounds



The LTE 386s/20 uses a 20 mhz 386sx processor with cache memory design and a 16 bit graphics controller, the LTE 386s/20 packages this optimal performance in a 8.5 by 11 inch PC weighing 7.5 lbs.

Starting At 2949.

COMPAQ, LTE, and DESKPRO ARE REGISTERED WITH THE UNITED STATES PATENT AND TRADEMARK OFFICE.

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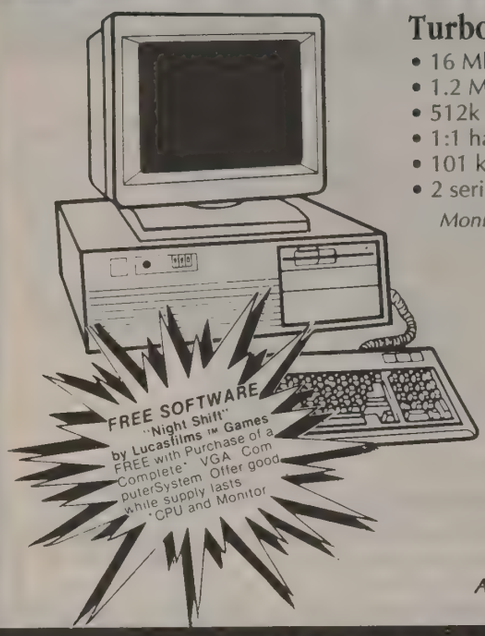
401 Bayshore Blvd. 285-5244

SAN JOSE
3550 Stevens Creek Blvd. (408) 554-8300

WEA COMPUTER SYSTEMS



Turbo 286 16

- 16 Mhz 80286
- 1.2 MB floppy
- 512k RAM
- 1:1 hard drive controller IDE
- 101 keyboard
- 2 serial 1 parallel port

Monitor, display card extra

399.

386SX

- 16Mhz 386SX
- 1 MB RAM
- 1.2 MB floppy
- 1:1 hard drive controller IDE
- 101 keyboard
- 2 serial 1 parallel port

579.

386/33 Mhz

- 1 MB RAM
- 1.2 MB floppy drive
- 1:1 hard drive controller IDE
- 64k cache
- 101 keyboard

879.

WHOLE EARTH COMPUTER SYSTEMS

WEA 486-33 Standard

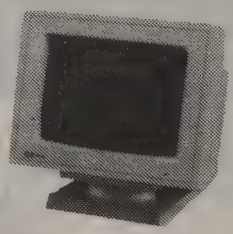
• 4MB RAM upgradable to 64 MB on motherboard • I/O, 1.2/1.44 MB FD, 101 keyboard • 1:1 hard drive controller IDE • Desktop case • AMI BIOS • 256K RAM cache • 6-16 bit slot • 2-8 bit slot • Weitek math co-processor socket.

1499.

Ad expires 2/16/92. Limited to stock on hand. Errors subject to correction.

MONITORS

Leading Technology 1480A



• 14" amber flat screen 720h x 350v with tilt and swivel.

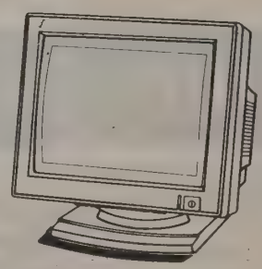
119.

PCPartner by Leading Technology Inc.

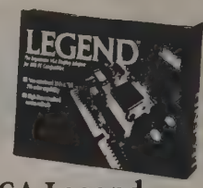
360V 14" Mono

• Paperwhite • 64 Shades of gray • Non-glare • TS and cable

135.



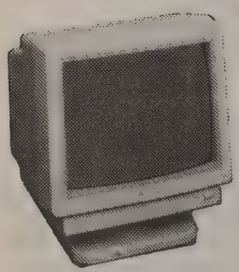
SIGMA DESIGNS



Sigma VGA Legend

• 1024 x 768 • 16 colors • Interlaced or non-interlaced • No switches or jumpers • 512 K video memory upgradable to 1 MB • Exceeds European ergonomic standards for flicker-free displays • Upgrade kits in stock (VGA CARD ONLY)

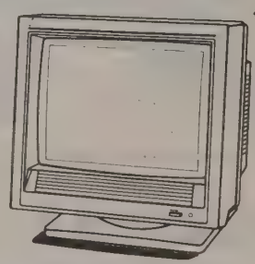
219.



Leading Technology 1458V

14" analog multi-frequency 640 x 480, .51 mm dot pitch

299.



PCPartner by Leading Technology Inc.

1420S

- 14" Super VGA color
- .28 dot pitch
- Includes tilt & swivel base
- 1024 x 768

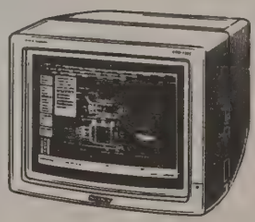
349.

SONY

Sony 1320 VGA

- VGA color monitor
- Analog input
- .25mm aperture grid

499.

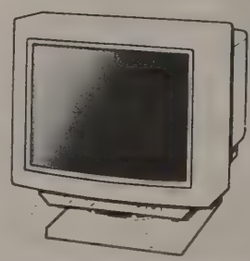


SONY

Picture Perfect

Ideas spring to life in sharp vivid color on this advanced Sony monitor. Sony combines non-interlaced technology with a super fine pitch grille to achieve sharper images without flicker. Compatible with Macintosh. #CPD-1304HG

599.



VIDEO CARDS

EVEREX EDGE II MONO GRAPHICS	29.
STANDARD TECHNOLOGIES VGA 1024	99.

MATH CO-PROCESSORS

80387-16SX	139.
80387-20SX	159.
80387-20	239.
80387-25	239.
80387-33	239.
287XL	99.

HARD DRIVES

QUANTUM (SCSI) LPS52S3.5 52MB	295.
QUANTUM (SCSI) LPS105S3.5 105MB	459.

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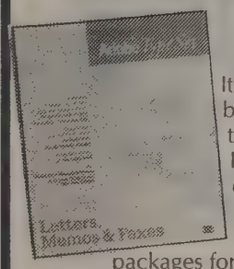
SOFTWARE

Adobe Type Set® For Business

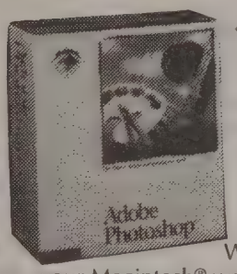


The Right Type for the Job

It's important to look good in business, and using the right type can help you stand out. But how do you know if a certain type is your type? That's why we created four new Adobe Type Set® packages for business: Letters, Memos & Faxes; Overheads & Slides; Invitations & Awards; and Spreadsheets & Graphs. They make it easy to communicate more effectively.

99.

Adobe Systems Incorporated



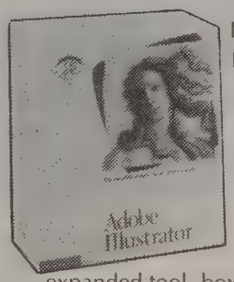
Adobe Photoshop™

Imagine What You Can Create

Then create exactly what you imagine. That's the incredible power of Adobe Photoshop™ software. With Adobe Photoshop and your Macintosh®, you can create and produce color and black and white images, right at your desk.

549.

Adobe Illustrator®



Top Drawer

It takes a desk-full of programs to match all the capability you get with Adobe Illustrator® software Version 3. For starters, Adobe Illustrator still offers top-notch drawing power. Only now there's an expanded tool- box with a feedback box to guide you along.

429.

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HEWLETT PACKARD

Authorized Dealer

HP 95LX Palmtop PC with Lotus® 1-2-3®

PC power in the palm of your hand

Built in: • Lotus 1-2-3 Release 2.2 • Complete set of organizer tools • HP financial calculator • Data communications • Plug-in card slot • 512K RAM

Link to your PC with the optional Connectivity Pack

Allways™, PrintGraph, and Translate are not included in the HP95LX. Lotus and 1-2-3 are registered trademarks and Allways is a U.S. trademark of Lotus Developement Corporation

499.

Articulate Systems

the voice communication company

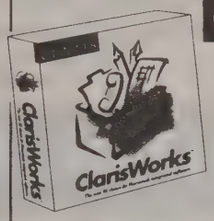
Voice Navigator™ II

the voice user interface

Control any Macintosh application by voice, using spoken commands to execute any function "normally performed with your keyboard and mouse.

599.

CLARIS



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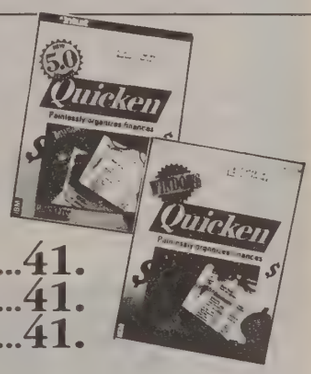

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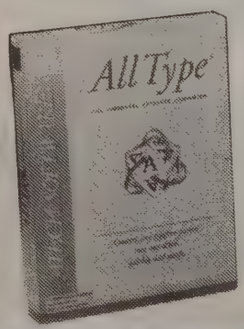

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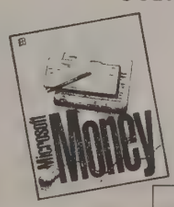

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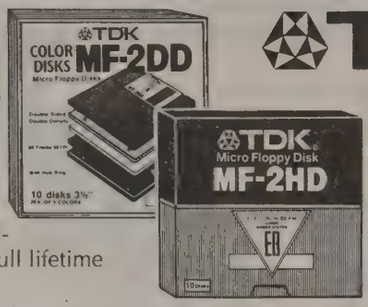

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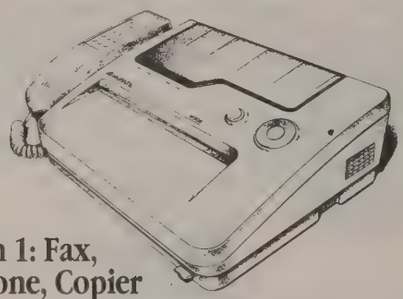

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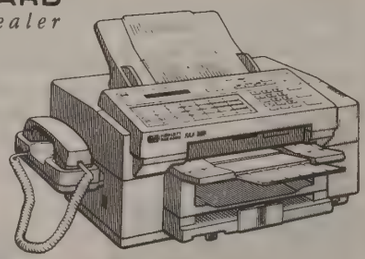

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WHOLE EARTH ACCESS

Continued from page 103

AMERICAN PEOPLE/LINK

165 North Canal St., Ste. 950
Chicago, IL 60606
800-524-0100

People/Link, or "Plink," as the subscribers here fondly call the service, is more a niche system than anything else. It used to advertise itself as a place to "escape" the day-to-day rat race by logging on and "adopting" an alternative personality. Ads showed a mild-mannered accountant turning into "Indiana Jones" (or Tom Jones for that matter) simply by turning on his modem.

Most of the subscribers are "old timers" who feel comfortable with the service, not unlike WordStar 3.3 users who refuse to use another word processing system because they "grew up" using and learning WordStar.

P/Link has forums to discuss your hobbies, sports, or computer problems. The range of forums isn't as extensive as CompuServe, but few, if any, match CompuServe. And indeed, P/Link makes no apologies for not being another CompuServe; they don't want to be. They foster the "small community" atmosphere and the subscribers enjoy it.

P/Link can boast one of the largest and most current databases of software dedicated to the Amiga. The public domain selection of software for the Amiga on P/Link is a major drawing card for a large segment of computer owners (Amiga) who often feel slighted by other online systems. Several hardware and software vendors dealing with the Amiga are also found on P/Link.

The system includes the basic services: email, real-time chat modes (the place to be "Indiana Jones," or "Bon Jovi" or "Jerry Garcia" for that matter), shopping services, and "book your own" airline seat service.

Evening and weekend pricing: $5.95/hour (1200bps); $9.95/hour (2400bps); $18.00/hour (9600bps). All rates during weekdays, regardless of modem speed, cost $17.95/hour. There's an 800 access number that runs $12.00/hour for any speed day or night.

BRS: AFTER DARK

BRS Information Technologies
8000 Westpark Dr.
McLean, VA 22102
800-995-0906

After Dark is so named because the system offers you a discount rate on nights and weekends. The system is highly specialized in that it focuses on information retrieval; if you want to don a virtual personality, check out a system that has real-time conferencing. Use BRS After Dark when you're digging for facts, not fantasy.

The system hosts more than 150 separate databases. The range of topics covers business, medical, scientific, and technical information. The databases are constantly updated—a contractual condition specified by BRS. This makes BRS an extremely useful and timely resource when trying to track down that elusive piece of information.

The system has the added plus of being menu-driven. For those not yet initiated into the "info-search" wars, using a menu-driven system is a godsend. The menu system (commonly referred to as a "front end") is touted by BRS as requiring "no computer expertise and no more keying proficiency than a pocket calculator." That's marketing hype and half true. There isn't an online system in existence that doesn't require some computer expertise—after all, you have to be able to boot that comm software and somehow figure out how to connect that modem to the RS-232 port, don't you? The line about the keying proficiency is a copywriter's throwaway; how difficult is it to punch a return key?

True, you don't have to have a master's degree in library science to use BRS After Dark; the menu system leads you through your search with plenty of prompts (experienced users can bypass the menu, making use of command "shorthand").

The system charges a one-time subscription fee of $75.00. Monthly minimum charge is $12.00 whether you log on or not. Connect time charges range from $10.00 to $25.00 per hour.

BYTE INFORMATION SERVICE (BIX)

Byte Magazine
One Phoenix Mill Lane
Peterborough, NH 03458
800-227-2983

BIX was the first online system to legally distinguish itself as a "publication" rather than a videotex system. Indeed, the head honcho at BIX has "managing editor" printed on his business cards. This was a calculated move by BIX from the beginning in an effort to thwart some of the sticky legal grey areas surrounding electronic text.

If BIX is a publication and legally classified as such, then the "editors" can do with the text as they see fit. What that really means is, if you put something offensive online, the "powers that be" can yank it—or modify it—without having to give you so much as a minute's warning. And when you sign up for BIX you have to acknowledge this fact and sign on the dotted line that you accept these conditions.

Now, all that might sound overly harsh, but in practice, the folks at BIX aren't anywhere near as heavy-handed as that. It was actually BIX's parent—McGraw-Hill—that insisted on such maneuvers; the legal department at McGraw-Hill simply didn't know how to handle this animal called BIX, so they did what lawyers do best. They shoved BIX into the legal equivalent of never-never land.

History aside, BIX carries the most technically astute online populace in the world. (I'm talking commercial online here; we all know that Internet is where the real heavyweight

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techies hang out.) In addition to the subscribers it draws from the US side, BIX has an admirable number of foreign subscribers. Most of these are drawn from their long association with BIX's hardcopy counterpart, the venerable *Byte* magazine.

Each of *Byte* magazine's authors and columnists can be reached directly on BIX. If you have a gripe about a column or article, BIX is the place to bitch, right to the source.

BIX has hundreds of conferences that are further broken into topics. For example, the BBS conference is splintered into topics such as "issues," "sysops," "TBBS," "Fido," and others. The software that drives BIX is a robust, highly modified computer conferencing system called CoSy (though it hardly resembles the original version of CoSy). Within each conference there is a file section—called "Listings"—where you can upload or download shareware software.

On a system with such extensive technical savvy and subscribers, you'd expect the Listings section to be outstanding, both in quality and innovation. In truth, these Listings are usually just a rehash of previously released software, and hardly ever any kind of innovation is represented; if you're looking for software, you'd be better off looking to CompuServe or one of the nation's powerhouse BBS systems (such as Exec-PC).

But if it's technical information you need, look no further. BIX is the place to leave your query. But don't stop at just technical information. Need to know if that alternative universe you've created on your word processor in your spare time is actually viable? Head over to the science fiction conference or maybe join in on a conference headed by the irascible Jerry Pournelle for a candid opinion of your creative talents.

BIX also has a real-time conferencing mode. The editors on BIX work hard at providing big names from within the computer industry for special weekly "chats" online.

BIX also runs the award-winning *MicroBytes Daily*, a daily news service of what's happening around the computer world. Here you'll find hard news items, feature stories, and up-to-the-minute coverage of industry trade shows such as COMDEX and NetWorld.

You can reach BIX via BIXnet by calling a local telephone number and paying $2.00/hour from 5 pm to 8 am on weeknights and weekends. The cost is $6.00/hour weekdays; the prices are for all speeds up to 2400bps. You can dial direct long-distance to BIX and pay $39.00 per quarter for unlimited use. For access via Tymnet in the US the cost is $6.00/hour (prime time) and $3.00/hour (non-prime time). Or you can get unlimited non-prime time through Tymnet for a flat fee of $20.00 per month.

DELPHI

General Videotex Corporation
3 Blackstone St.
Cambridge, MA 02139
800-544-4005

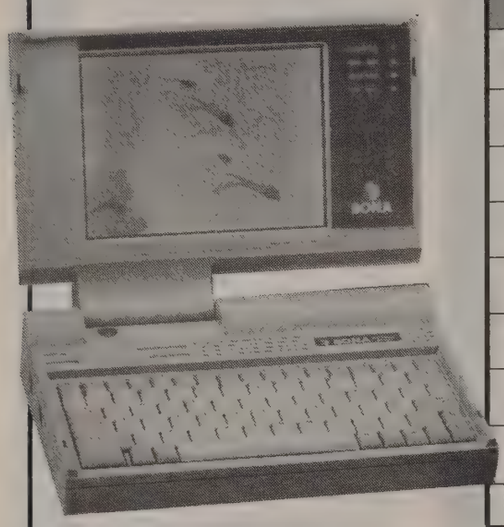
Delphi's had more lives than a cat. I can't count the times over the years that I've heard "Delphi is going out of business." The fact that it hasn't is due to the tenacity and loyalty of its subscribers. And the fact that Delphi has the uncanny knack of being the online system of choice for "videotex refugees"—people that have either been jettisoned from another system because it's gone out of business, or who have moved to Delphi because they've simply tired of a larger system, such as CompuServe.

Consequently, it's not unusual to find former members of The Source and CompuServe holding court here any night of the week. For years Delphi was the "other place" to subscribe if you didn't like CompuServe or The Source. It ran a distant third; with the proliferation of online systems today, it can't even claim a membership one-tenth the size of CompuServe's 750,000. It can, however, boast a membership from more than forty countries.

The services here are what we've come to expect from a commercial online service: email, computer conferencing, telex, fax, real-time conferencing. Delphi also has SIGs; the most popular are those for the PC

Continued on page 120

BONA 386SX-20 NOTEBOOK



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USA Flex	SX-20	2 (Max 5)	60	$1,995
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Standard	SX-20	2 (Max 5)	60	$1,895
Zeos	SX-20	1 (Max 5)	20	$1,795
Altec	SX-20	2 (Max 6)	40	$1,750

Source: Computer Shopper, January '92 Issue

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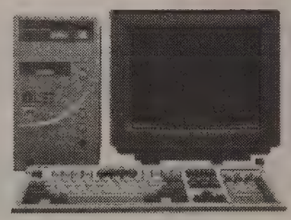

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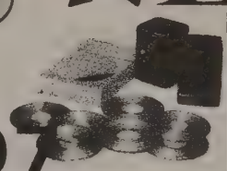

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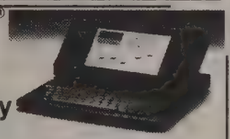

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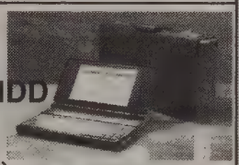

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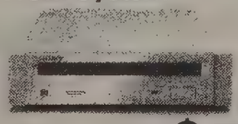

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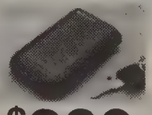

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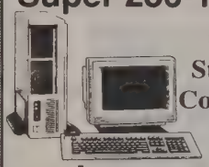

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Continued from page 114

and Macintosh. There is a substantial collection of public domain software for both types of computers. SIGs also exist for lots of other interests, including writers, photographers, science fiction, and more.

Financial information on Delphi is designed to appeal to both business users and individual investors. Stock and commodity price quotes are available, as well as stock prediction models such as TrendFast and Security Objectives Services. Several of Delphi's investment services can also be made available directly from local area networks via InfoLink.

Delphi also has multiuser online gaming facilities. Multiplayer competitions are waged in Poker Showdown (five varieties of the game). If nobody sits in with you, then Delphi has "robot" gamblers ready to call your bluff. TQ Trivia tests your knowledge in several different categories. Other games include Scramble and Flipit. But all these pale considerably compared to the variety and complexity of the games offered on CompuServe.

Delphi's main strength has always been its pricing; there are no surcharges for higher-rate access and no Tymnet or Telenet charges. The system's Advantage plan offers connect rates for $6.00/hour. There is a $5.95 monthly fee that includes your first hour online. With the 20/20 Advantage plan, you get 20 hours for $20.00.

GENIE

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Rockville, MD 20850
800-638-9636

GEnie gets the chameleon award; every month this service changes its offerings, mostly by adding something new or improving on an existing feature. It's never static. Aimed largely at PC users who want a low-cost system, GEnie has been increasing its membership on a steady basis ever since it went online in 1985.

The core of GEnie is what it calls "RoundTables." These are patterned after the SIGs on CompuServe and Delphi. People with special interests can start a RoundTable discussion; the RoundTables operate in a manner similar to CompuServe's.

You'll also find downloadable shareware files, real-time chat mode, email, and an online shopping mall. GEnie offers more than thirty product support RoundTables for companies such as Hayes Microcomputer, Microsoft, WordPerfect, etc. (Software and hardware vendors also have their own forums on other systems, such as BIX and CompuServe.) GEnie offers NewsGrid for headline news, and there's a gateway to the Dow Jones/News Retrieval system, too. GEnie offers 550 local telephone nodes around the country. This keeps the network charges down to that of a local call.

Politically Correct readers might take note that the parent company is the same General Electric that is heavily involved in the manufacture of defense weaponry, including the triggering devices for nuclear weapons. Lest you think that my own political bias is showing, the subscribers themselves have blasted the parent company in a special RoundTable set up just to debate this topic. But if you're an employee of GE, don't bother being candid here; it could cost you your job.

A couple of years ago I wrote a story for *MicroTimes* that chronicled the dismissal of a GE employee for speaking up about his misgivings concerning GE's defense ties. That employee "spoke up" on the GEnie RoundTable designated for just that purpose. The company thought differently and fired him. Forewarned is forearmed. ■

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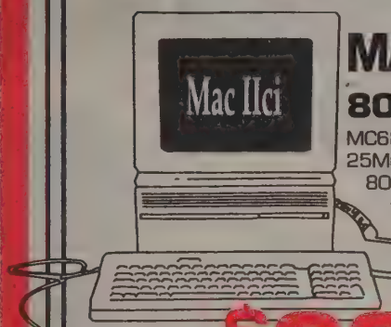

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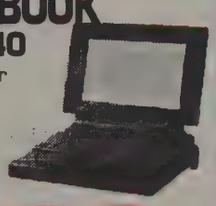

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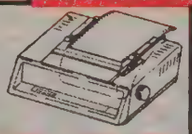

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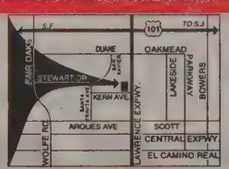

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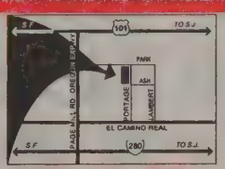

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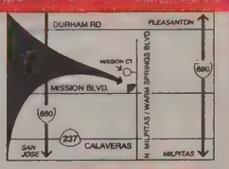

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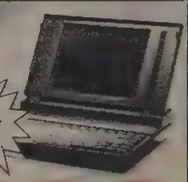

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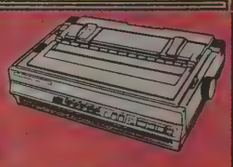

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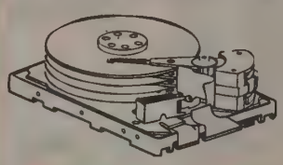

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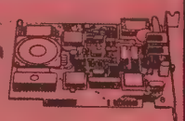

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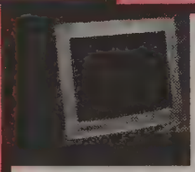

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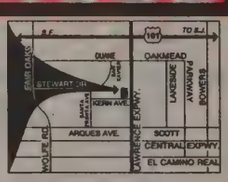

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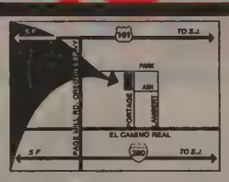

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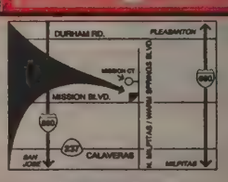

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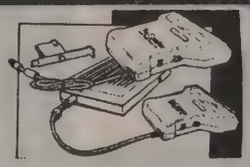

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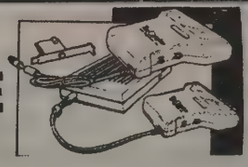

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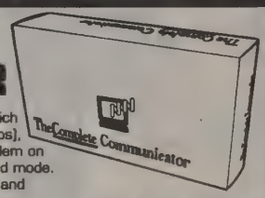

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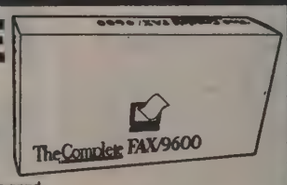

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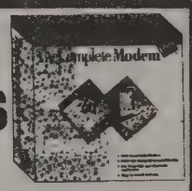

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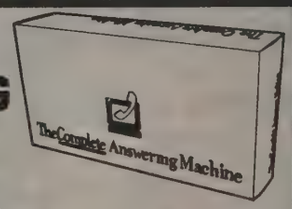

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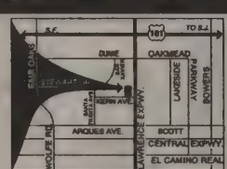

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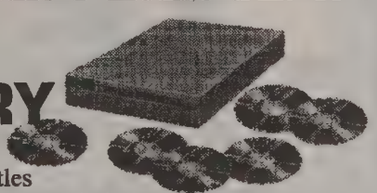

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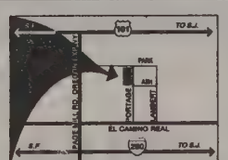

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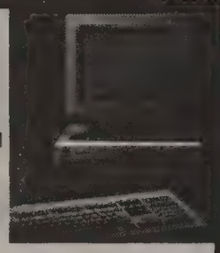

386SX-20MHz CPU
2MB RAM Expandable to 4MB on Motherboard
5.25" 1.2MB Floppy Disk
3.5" 1.44MB Floppy Disk
124MB Hard Disk
2400 Baud Internal Modem
Serial/Parallel/Mouse Ports
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800 x 600 .31 DPI Color VGA Monitor • Service Centers Worldwide
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Microsoft DOS 5.0, DOS Shell, Microsoft Windows 3.0, Spinnaker DOS Manager, GBASIC, System and Video Utilities, Splash Paint Program,
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40MHz 386
124MB SVGA BUNDLE
1024 X 768

40MHz 80386 CPU
2MB RAM Expandable to 32MB on Motherboard
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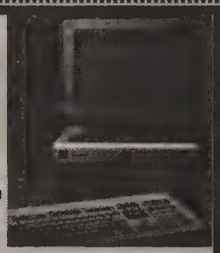
16MHz 386SX
40MB VGA BUNDLE



80386SX 16MHz CPU • 40MB Hard Disk
5.25" 1.2MB Floppy Disk
3.5" 1.44MB Floppy Disk
1MB of RAM Expandable to 32MB
3-Button Mouse •2400 Baud Internal Modem
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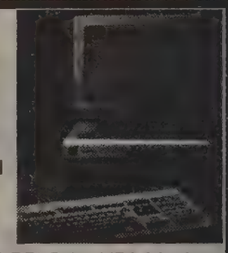
33MHz 486
200MB VGA BUNDLE



486-33MHz CPU • 200MB Hard Disk
Intel 2nd Generation Smart Cache System
Integrated Math Co-Processor
4MB RAM Expandable to 32MB on Motherboard
5.25" 1.2MB Floppy Drive
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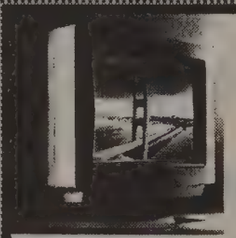

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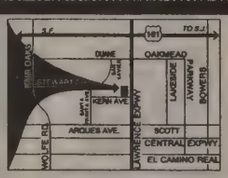

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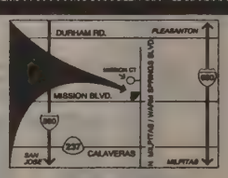

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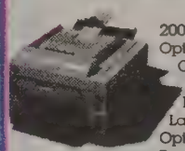

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Optional 75 Envelope Feeder
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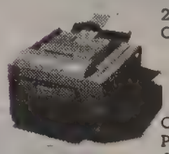

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Optional 500 Sheet Second Drawer
Optional 75 Envelope Feeder
100 Auxiliary Feeder
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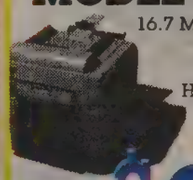

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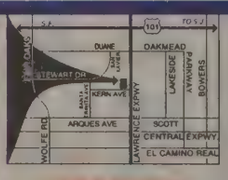

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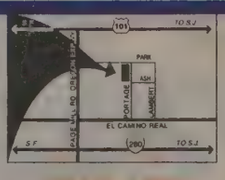

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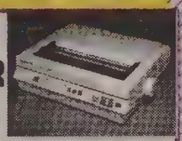

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C1395

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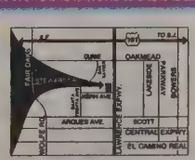

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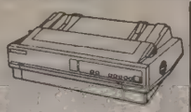

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110 CPS Letter Quality Mode
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84 CPS Letter Quality Mode
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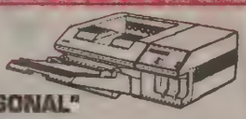

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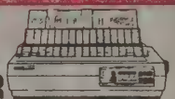

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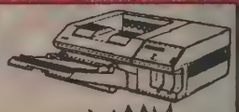

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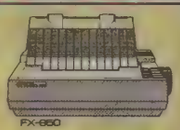

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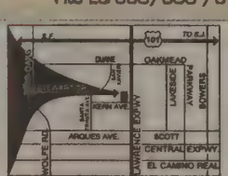

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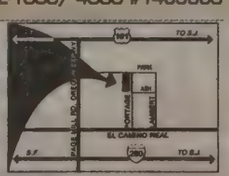

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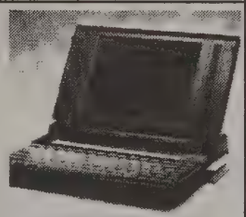

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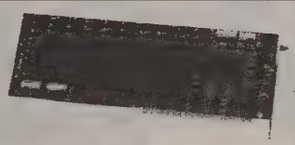

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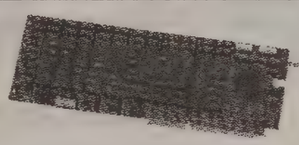

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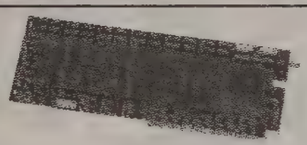

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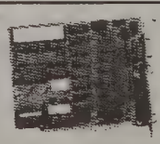

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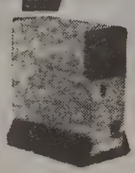

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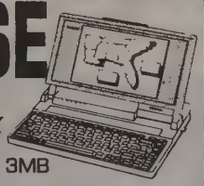
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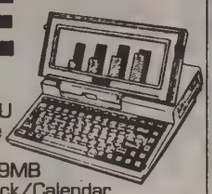
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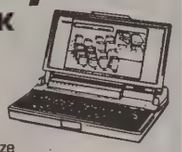
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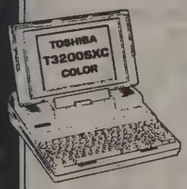

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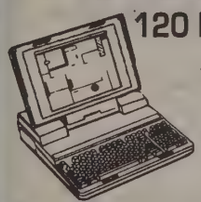
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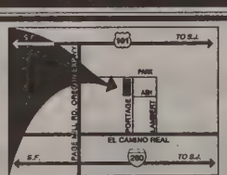

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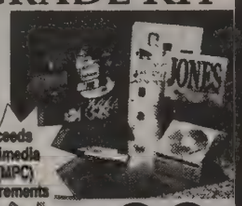

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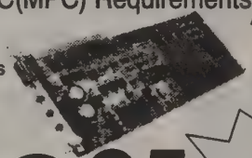

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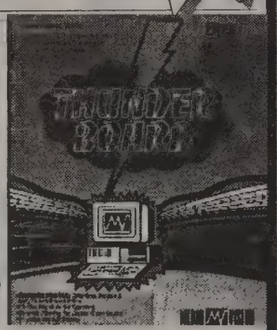

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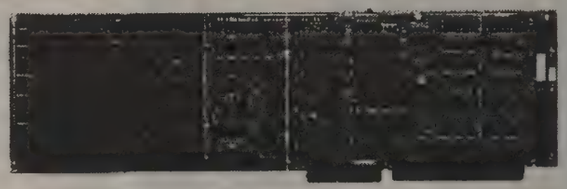

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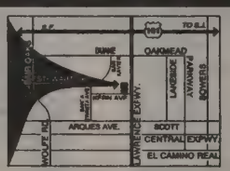

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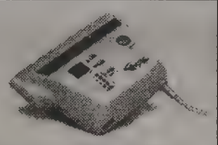

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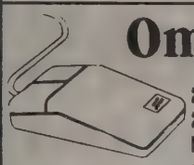

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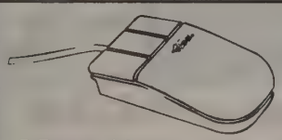

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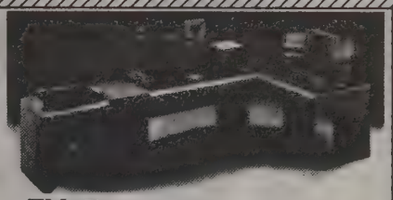

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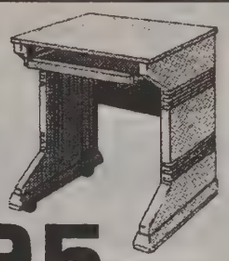
The Work Manager System offers the sophisticated features, the sleek looks and the advanced ergonomics of expensive designer furniture, at a fraction of the cost. Modular components let you put together a workstation with precisely the features you need. And you can start small and add on as your needs grow. Lightweight, versatile, easy construction and easily shippable!

MobileManager™ PC Workstation



Work Manager Desk With
Keyboard Drawer. 27" Long,
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Larger Sizes Also In-Stock.

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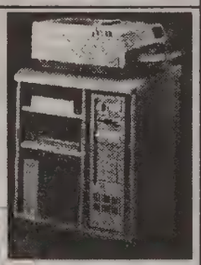

For efficient space utilization, this sturdy mobile cart holds a laser printer, an IBM PS/2 60 or 80 CPU tower, and a variety of supplies. 29 3/8" high, 24" wide and 22" deep. Four casters provided, two locking.

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Fits conveniently under any WorkManager desk
Two Drawer • Platinum Color
Four casters for easy mobility (two locking)
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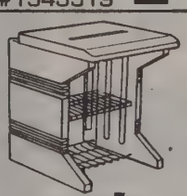

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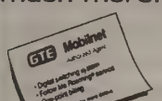

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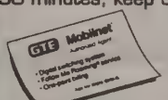

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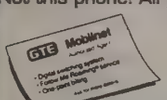
If it's features you want, the 1500 has it all! It keeps your most frequently dialed numbers and redials busy numbers automatically. For most phones, hands free requires an external kit with installation required. Not this phone! All you need is a microphone that we have in stock!



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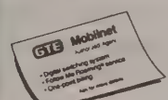
Murata thinks of everything! This lightweight feature packed cellular phone from Murata offers Dual-Nam capability, a 30 number auto dialer, is backlit, and has a built-in timer and calendar to tell you everything from how long you've been talking, to what day it is!



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No matter where you are Panasonic makes sure that you can take the call! This hot new unit has a 2 hour battery, 100 number memory, alphanumeric display and a whole lot more!

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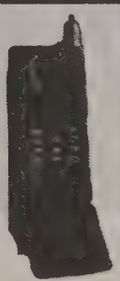
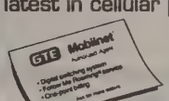


If it's small and lightweight that your looking for, this is the cellular phone for you! With it's 101 alpha numeric memory, a desktop rapid charger, 20 hour battery in standby, 8 hour battery in standby and carrying case, this cellular phone incorporates the latest in cellular phone technology at only...



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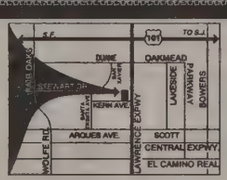

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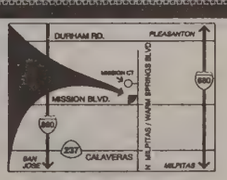

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PRODUCT SPOTLIGHT

New Products

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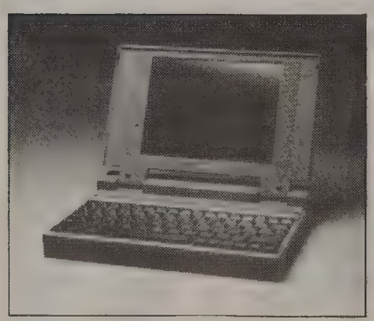
MICRO-L NOTEBOOK/ SXV

The Micro-L Notebook/SXV delivers all the performance of a desktop PC in a compact, 6.3lb. package, including NiCad batteries, Conner hard disk drive, and Matsushita 1.44MB floppy disk drive. This 386SX notebook with 1MB of RAM, expandable to 5MB, and VGA graphics also includes a 9-pin serial port, 15-pin VGA port, and 25-pin parallel port. There is also room for a 387SX coprocessor and internal fax/modem. Microline Computers, Inc., 46757 Fremont Blvd., Fremont, CA 94538. (510)770-1900.



EVEREX TEMPO CARRIER NOTEBOOK

The Tempo Carrier, weighing only 5.2lbs. including the battery, uses the innovative KeyMouse pointing technology to provide graphical pointer control directly from the keyboard. Featuring a 20MHz, Intel 386SX processor, this notebook also includes an 80-key keyboard with full 101-key emulation, 2MB of RAM, expandable to 8MB, and a 40 or 80MB hard disk drive. The Tempo Carrier also features extensive battery-saving controls and the ability for the system to be automatically activated from suspend mode by remote modem call. Everex bundles this system with MS-DOS 5.0, Windows 3.0, and a 400dpi Everex two-button mouse. ($2795) Everex Systems, Inc., 48431 Milmont Dr., Fremont, CA 94538. 1-800-992-3839.

GAMES REVIEW

By Mike Markowitz

KNOWLEDGE ADVENTURE

Published By: Knowledge Adventure
Programmed By: Fernando Echeverria and Dan Kegel
For: MS-DOS (requires EGA or VGA video and hard drive with at least 6MB of free space, mouse and most audio cards supported)
Age Level: 7 and up
List Price: $79.95

If true "multimedia" programs for DOS systems have to wait until everyone has a CD-ROM drive, it's gonna be a long wait. Meanwhile, developers are managing to deliver some ambitious products that run on systems that people actually have.

Knowledge Adventure is the first product from a small startup company staffed by veterans of Lotus. More than a game, and less than an encyclopedia, Knowledge Adventure is a database of images and text, plus a little sound, tied together by a very smooth user interface. According to Steve Chadima, vice president of marketing, additional plug-in modules, such as Sports, are under development, and the program's core "engine" may eventually be licensed as a simple multimedia authoring tool.

The main window is a picture linked to a text file, time line, and location. The time is referenced to a scroll bar at the bottom of the screen, extending from the Big Bang to the year 2000. The text box presents a paragraph, in a very readable font that scrolls very smoothly. You can print out the text files by clicking a button (you can even read or print these plain ASCII files from DOS).

The location is referenced to a dot on a small wireframe globe of the Earth. Based on a mainframe model

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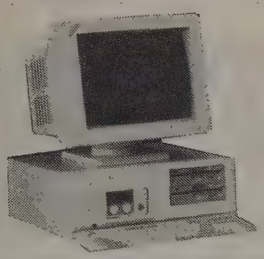
386-SX Special



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2MB RAM Installed
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16-bit VGA Card w/ 256K
14" VGA (640x480) Monitor
2 Serial/1 Serial/1 Game Ports
101-key Enhanced Keyboard

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TECH 386-40MHz w/ 64K Cache	$628
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Bare-bone system includes: 1MB RAM, 1.2MB or 1.44MB floppy drive, IDE 1:1 HD/FD controller, clock & calendar, 2 serial/1 parallel/1 game ports, Costar mini 101 keyboard, desktop or mini-tower case w/ power supply, and socket for math coprocessor.

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Panasonic 1124i	$295
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developed at JPL, this 100,000-vector globe can be zoomed and rotated in any direction. You can zoom in to an area as small as 100 square miles, which is helpful in regions like Western Europe that are densely packed with history. Click anywhere on the globe and the display jumps to the nearest image.

Knowledge Adventure uses familiar hypertext cross-reference conventions. The images are classified and linked by category such as art, science, literature, architecture, music, and nature. Click on a category button and you jump to the next image in that category. Some images also have invisible buttons within the picture frame—click on an object and you jump to another related image. The text indexing is superb: every occurrence of every significant word is cross-referenced. You simply double-click on a word to bring up the master Index.

The images are mostly color photographs scanned in 16-color EGA format and stored using proprietary compression methods (you would need a screen grabber to capture or print them). The compression ratio is about 10:1 and it only takes 1–2 seconds to decompress and display each image. Some of the scans are surprisingly sharp, while others are at the borderline of fuzzy acceptability. Future versions will incorporate 256-color VGA photo-realistic images, but really large image libraries will probably require CD-ROM. Due to copyright restrictions, the program itself does not provide any hardcopy capability for the images, although the company is working on color printer drivers for future products.

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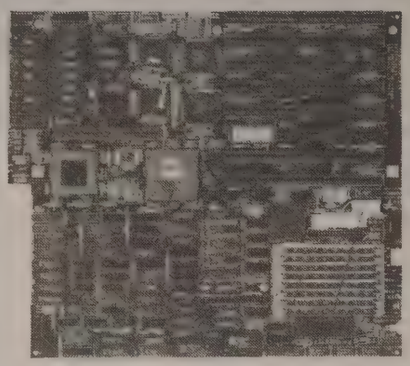
Authorized distributor of AMI Motherboards



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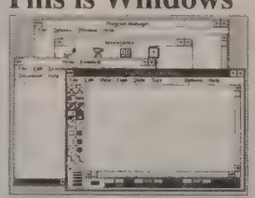

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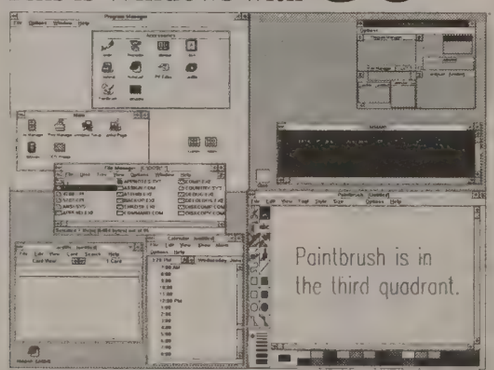

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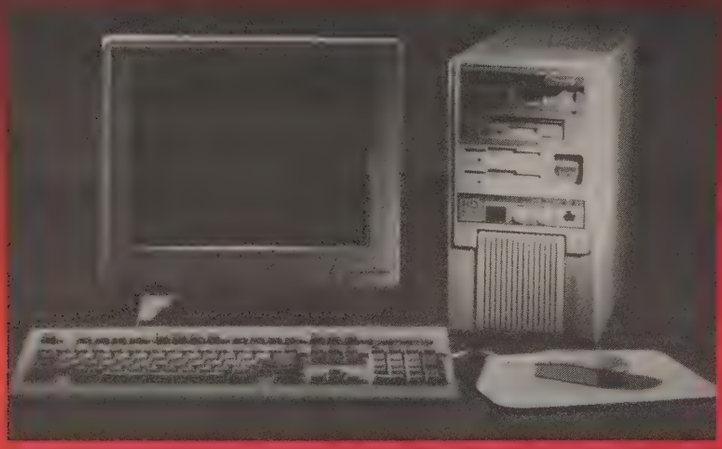

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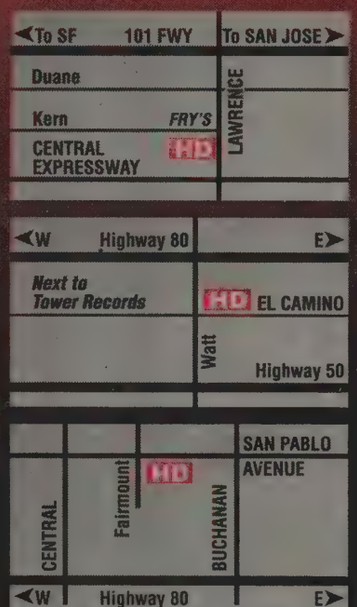

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PRODUCT SPOTLIGHT

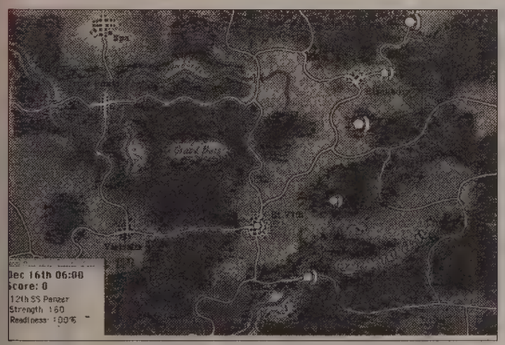
I was disappointed that the text files did not include their sources or suggestions for further reading. Overall, Knowledge Adventure is a splendid front-end to rather spotty and thin coverage of a vast domain of information. The slim user manual suggests several game-like activities that would, I think, be tremendous fun for curious kids.

The package includes eight 3.5" (720K) and five high-density 5.25" disks. A well-designed Installer makes the long installation process quite painless. For schools that have enough disk storage, Knowledge Adventure would be a valuable addition to a software library. (Knowledge Adventure, Inc., 4502 Dyer St., Suite 100, La Crescenta, CA. 818/542-4200)

PATTON STRIKES BACK

Designed By: Chris Crawford
Published By: Brøderbund (1991)
For: MS-DOS (640K, 10MHz AT or higher, mouse and EGA or VGA graphics recommended), Macintosh (1MB monochrome, 2MB color)
List Price: $59.95

"War games have always been hairy monstrosities, staggering under rules books that read like contracts for corporate mergers, bristling with abstruse numeric information, exploring strange new worlds of user hostility..." says designer Chris Crawford. In Patton Strikes Back, he set out to design a wargame that could be enjoyed by normal users. He was willing to make compromises with "realism" that would make the game easier and more enjoyable to play. The game is still surprisingly realistic—good tactics usually beat bad ones, but victory is very difficult for the Germans.



The subject is one of the best-known battles of the 20th century. (Most wargamers know the geography of the Ardennes better than the street map of their own neighborhood.) In December, 1944, as the Allied armies approached the German border, Hitler conceived the idea of a bold counter-attack through the rugged Ardennes Forest (in Belgium and Luxembourg), where his Panzers had made a decisive breakthrough in May, 1940. Elite SS and armored units were secretly concentrated opposite a quiet sector of the front, catching the American GIs by surprise. Severe winter weather grounded Allied airpower, as the Nazi attack rolled on to surround the key town of Bastogne. An epic stand by US paratroops held the crossroads until George Patton's

Continued

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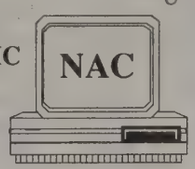

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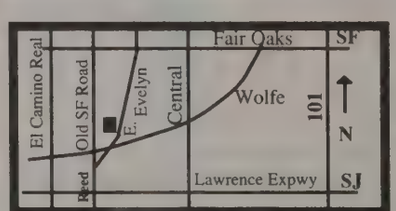

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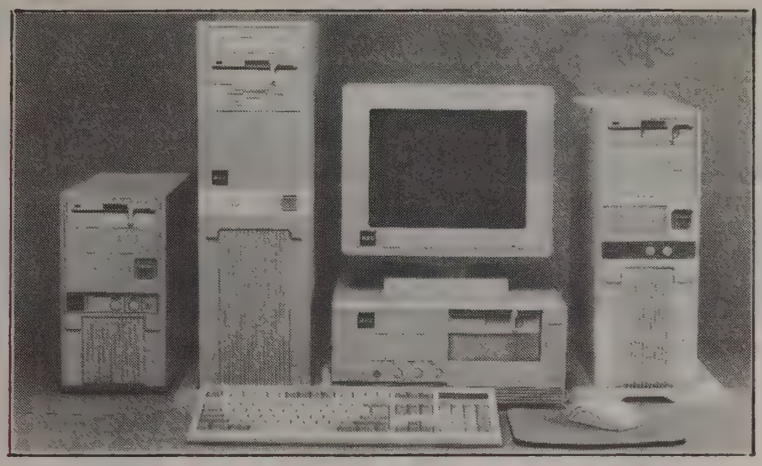

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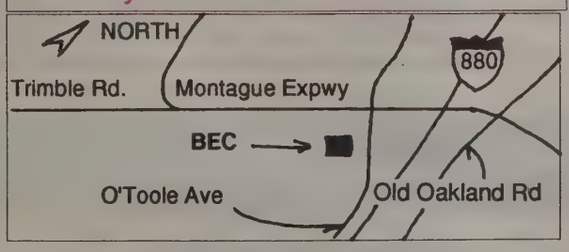

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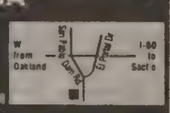

PRODUCT SPOTLIGHT

Third Army arrived.

The colorful game map covers an area of about 50 by 80 miles. Units are divisions and brigades (roughly 3000 to 17,000 soldiers) and the time scale is hourly. There are no "turns"—the action is continuous and you intervene whenever you want to give a unit new orders. Patton is designed as a solitaire game—you can play either the Allied or German side against the computer. There are five levels of difficulty, and you can select historical or random weather and reinforcement schedules.

The display uses very simple unit symbology—a thick arrow for attack mode, a circle for defense mode, a thin-tailed arrow for mobile mode, and an "X" for shattered mode. When you click on any unit its identity, strength, and readiness level appear in the text line at the bottom of the screen. If a unit is not shattered, you can give it orders to change mode or move (north, south, east, and west—the game uses an invisible square grid with no diagonal movement or attacks permitted). You can normally only "see" enemy units that are in contact with your troops, but if the weather clears, Allied air power provides a complete view of the board. On the Mac version, you can zoom in to a more detailed view, where the size of the unit symbols indicates their relative strength, but memory restrictions kept this feature out of the MS-DOS version.

Patton Strikes Back is a huge game. The MS-DOS version takes up over 3MB of disk space, and the Mac color version needs 5MB. The Mac version was compressed onto four disks, using DiskDoubler. An unpacking utility is included. The massive storage requirement stems, in part, from the game's "newsreels"—small animations digitized from WWII documentary film that pop-up whenever a significant event occurs in the game. When you make an airstrike, for example, you see footage of a dive bomber. You can terminate a newsreel with a mouse click, or turn them off entirely. Anecdotes drawn from an extensive "History Book" pop up during the game, or you can simply browse through them off-line. You can also request advice—a GI will pop-up in a window to offer suggested actions.

I was disappointed by the spare documentation—most previous Brøderbund historical games had well-researched, lavishly illustrated manuals. I would have liked some references or a bibliography. The only other criticism I would offer is the display—the summer green color scheme fails to convey the feel of a snow-covered battlefield, and the lack of unit ID on the symbols can be confusing. Patton Strikes Back sets a new standard of excellence for military history games. The list price seems high, but you get some value for the money—something distressingly rare in entertainment software these days.

LOST IN L.A.

Designed By: Steve Cartwright
Produced By: Sam Nelson
Published By: Accolade
For: MS-DOS (640K, 10MHz AT or faster, VGA graphics required; audio card and mouse recommended)
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PRODUCT SPOTLIGHT

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The 256-color VGA graphics combine hand-painted backgrounds with digitized video frames of real people. The user interface is based on a "smart" cursor: as you move the mouse around the screen, the cursor turns into a question mark over people you can talk with, a hand over things you can take, and footprints over places you can go. You don't have to type in any dialog—you simply select canned responses from a list.

Characters you will meet include Lance the lifeguard, Misty and Cristy the beach bunnies, Monique and Dominique the mud wrestlers, Blade the street punk, Lou the pawnbroker, Maladonna the superstar, and Dr. Nick, plastic surgeon to the stars.

Documentation consists of a 12-page booklet formatted as an issue of "The Daily Variety" and sprinkled with hints and tips. Accolade maintains a BBS that users can call for help. The package also contains Accolade's typical copy-protection codewheel.

As a game, Lost in L.A. is incredibly difficult. The complete solution requires so many wildly improbable actions, performed in a very specific sequence that only the most experienced adventurers, liberally supplied with hints, could ever solve it. As an example of the current state of the art in adventure game design, Lost in L.A. is totally rad. (Accolade, Inc., 550 S. Winchester, San Jose, CA 95128. 408/985-1700)

KIDWORKS

Programmed By: Tom Cardin, Bill Arthur, Carl Byington, and Doyle Bare
Published By: Davidson & Associates
For: IBM PC (640K, 8MHz or faster, MCGA, EGA, or VGA graphics. Mouse and most audio cards supported, requires at least 2MB of hard disk space)
List Price: $49.95

How would you design a word processor for kids (ages 4 to about 10) learning to read? You would probably give it a graphic user interface, with bold, simple icons, and, if you had the hardware resources, you would use lots of digitized speech to reinforce the connection between sounds and symbols.

KidWorks, from Davidson, a respected publisher of educational software, was designed to "introduce children to the fun of writing." (Since children generally do not have editors or deadlines, writing can still be fun for them.) It's built around four activities:

(1) The Story Writer is a basic word processor with two sizes of text—a big, bold font for younger kids and a standard one for older writers. Since the keyboard is the biggest

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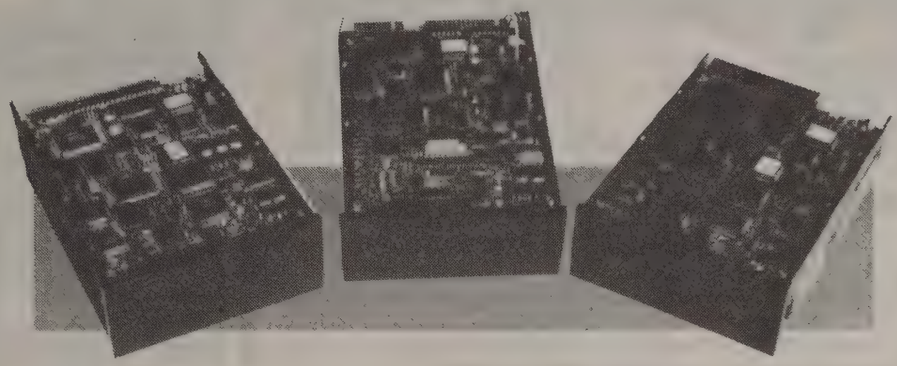

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PRODUCT SPOTLIGHT

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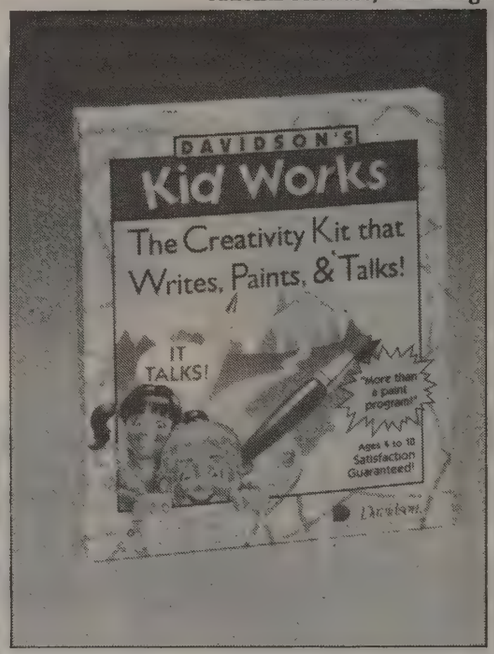
KidWorks, from Davidson, a respected publisher of educational software, was designed to "introduce children to the fun of writing." (Since children generally do not have editors or deadlines, writing can still be fun for them.) It's built around four activities:



(1) The Story Writer is a basic word processor with two sizes of text—a big, bold font for younger kids and a standard one for older writers. Since the keyboard is the biggest barrier between people and computers, the Story Writer provides a unique alternative. At the bottom of the screen, boxes display various sets of icons (over two hundred total) that represent words: cat, airplane, moon, catch, eat, big, dark, etc. Clicking on an icon inserts the corresponding word into the story.

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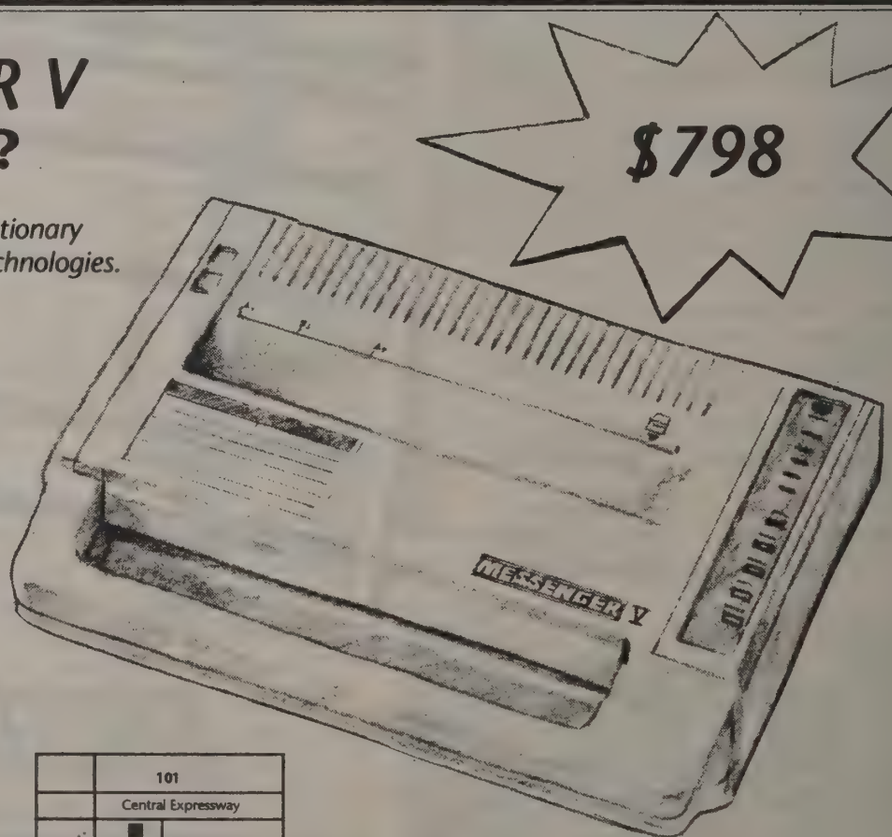

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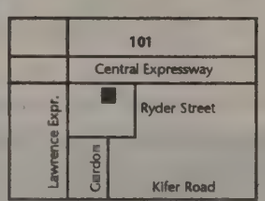

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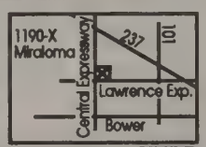

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PRODUCT SPOTLIGHT

(2) An Icon Maker allows you to add your own words and pictures. They go into a box labeled "My Words."

(3) The Story Illustrator is a simple 16-color paint program. It includes a collection of ready-made graphic symbols you can use like little rubber stamps to enhance your artwork. Pictures created in the Illustrator take up about one-third of a screen, so they combine nicely with blocks of text created in the Story Writer. You can only save pictures to the hard drive, not to a floppy disk.

(4) The Story Player combines your text and pictures for scrolling playback or printing.

The program's controls are all pictorial buttons. Clicking on the Mouth button, for example, activates the text-to-speech feature. The program will read out loud whatever you have written. Without an audio card, the result sounds rather faint and robotic (just like MacInTalk, in fact), but still recognizable. A graphic control panel (oriented to grown-ups) lets you set the sound volume, limit disk access, or shut off any of the program's modules.

The package includes two 3.5" (720K) and four 5.25" (360K) disks. A simple Installer unpacks the files and lets you specify printer and audio output configuration. The 50-page manual is well illustrated and indexed. (Davidson & Assoc., Inc., PO Box 2961, Torrance, CA 90509. 310/793-0600)

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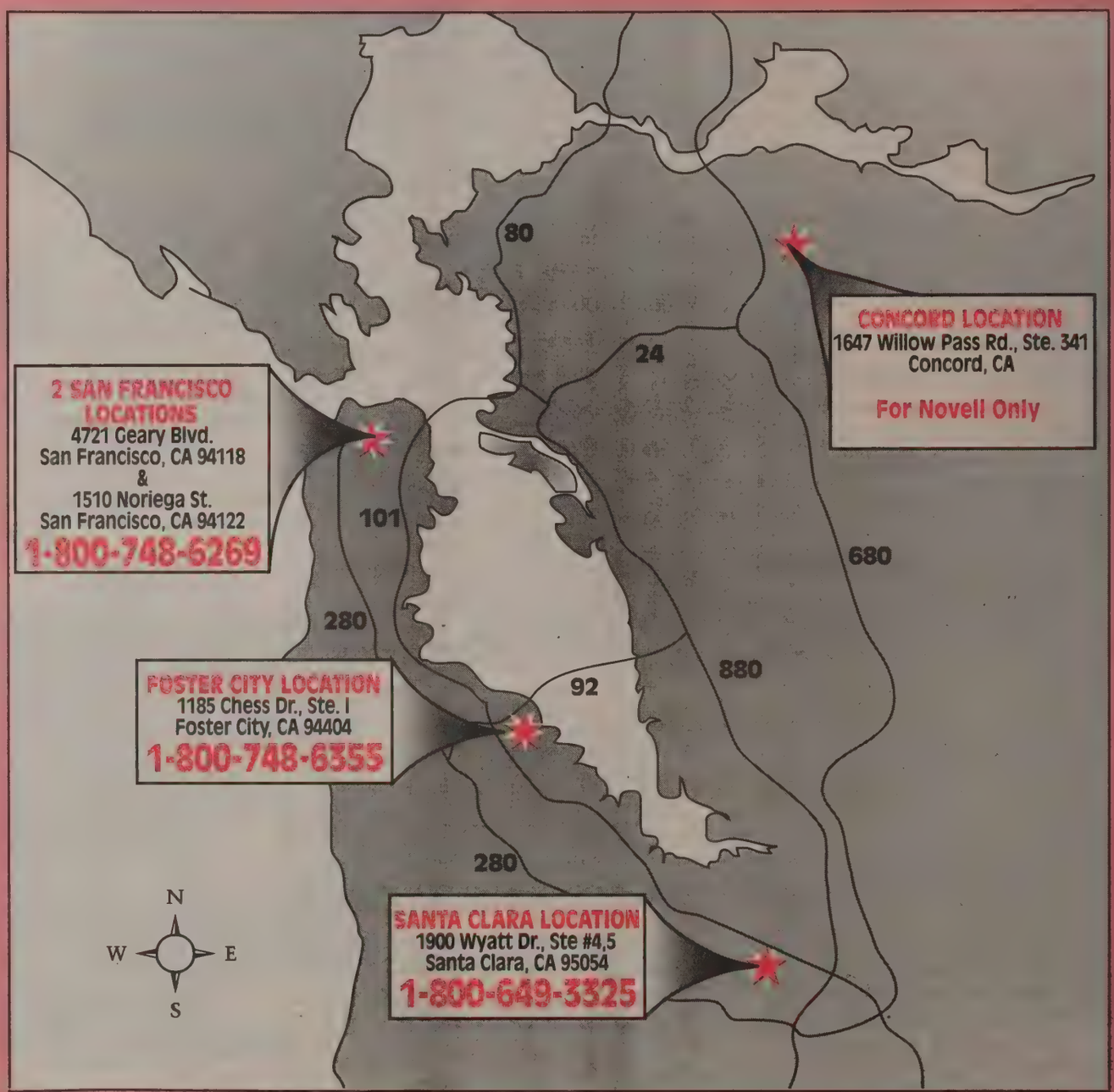

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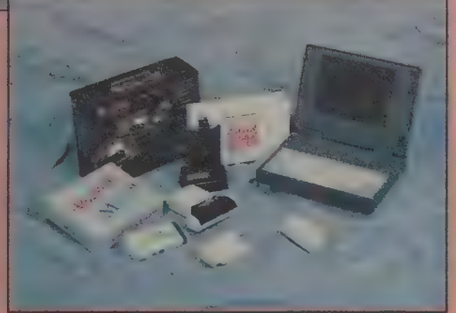

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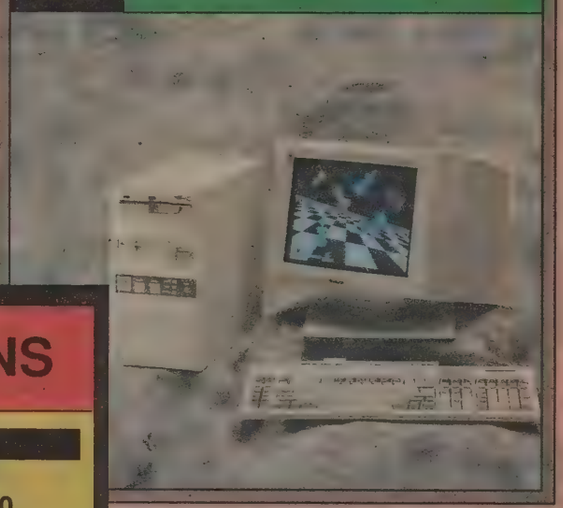

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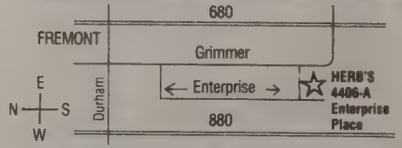

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PC SOFTWARE REVIEW

MAGAZINE RACK CD-ROM DATABASE

Published By: Information Access Co.

List Price: $89.95

Reviewed By: Woody Liswood

The Magazine Rack CD-ROM is a literature database that will save you time and money searching for the information you need. It is a compilation of about 369 magazines and their articles during 1990. Although the index covers articles back through January 1989, Gary Ellis, from Information Access, said that there were only a few articles from 1989, and mostly from the second half of the year.

The Folio Reviews v2.0 search-and-retrieval software works reasonably well using a pull-down menu system. It is also mouse driven, but you must be exactly on the start of an item for your mouse clicks to work. I found that the Folio interface was not as intuitive as other CD-ROMs that I have used. However, after a few minutes I felt comfortable using it.

To perform a search, you pick a general area—Business, Computers, General, or Health are areas displayed on the main menu. There are three additional databases on the disk; one has information about Magazine Rack, one is a computer dictionary and glossary of terms, and one contains a list of the magazines and publishing information contained in the databases. You cannot access all of the databases at once. Each is indexed separately.

From the pull-down menu structure you can get to files, edit data, perform searches, and change options within Folio. From the query system, you can search by keywords, topics, company names, dates, products, article types, magazine names, authors, or even for specific text within the articles. For example, under Publisher Information there are 230 listings for Business, seventy for Health, and thirteen for Computer.

Everything works. The usefulness of Magazine Rack, for you, is going to be determined by the magazines included in the database, since the software works and should not be an issue in determining if Magazine Rack is for you. (Information Access Co., 355 Lakeside Dr., Foster City, CA 94404. 415/378-5000) ■

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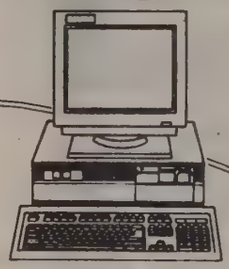

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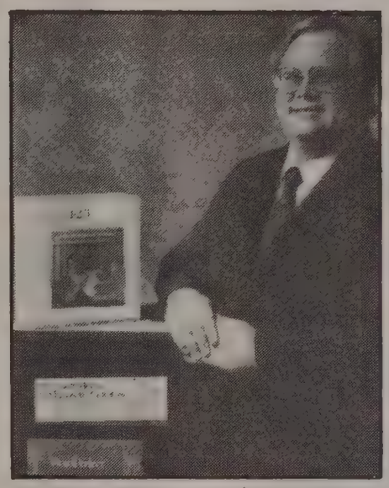

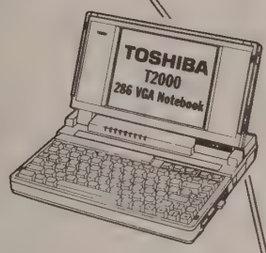

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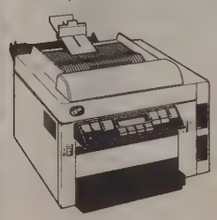

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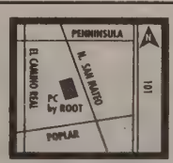

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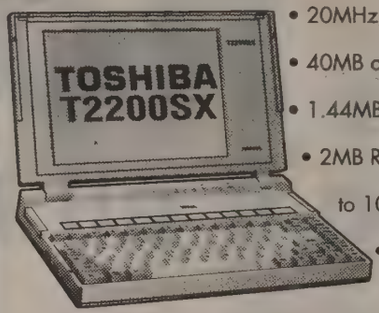

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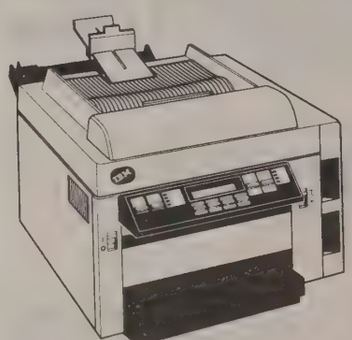

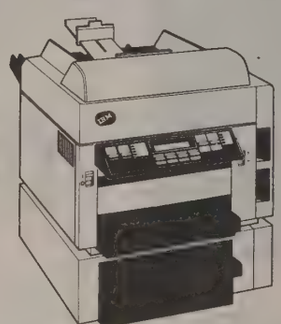

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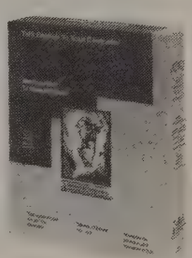

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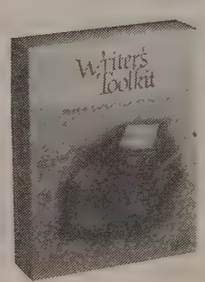

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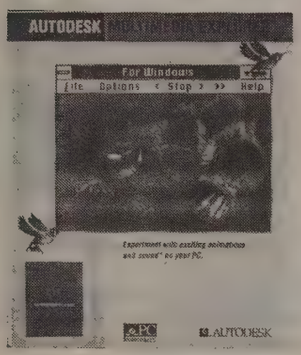

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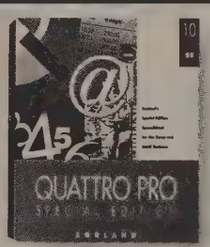

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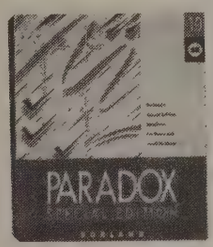

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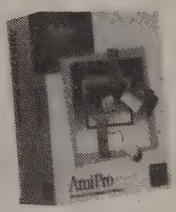

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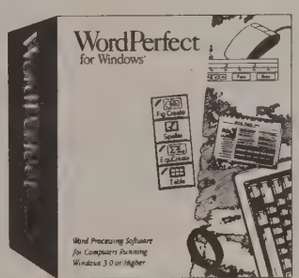

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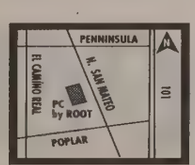

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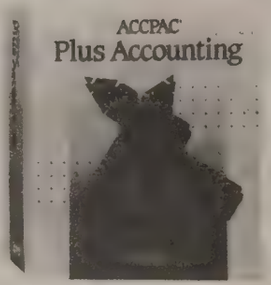

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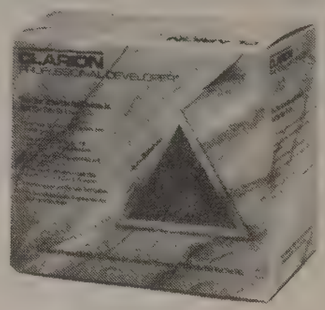

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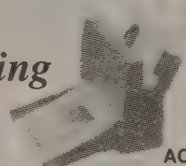

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Continued from page 18

The funding specified in the bill will be under one billion dollars each year, meaning the network probably won't be finished until the five years are up, if then. As the US struggles with its lack of nationwide communications, other countries will have competitive networks set up within the next three years. There have been suggestions within the US Defense Department that it should sponsor a high-speed national network simply to help its contractors work together better and produce better military hardware. However, with defense spending completely reliant on Congressional approval, such a proposal has little likelihood of passing.

ADOBE'S DOCUMENT INTERCHANGE STRATEGY

Without actually announcing any product, Adobe has made clear its intention to market a technology that will allow users to pass documents between computers, even across incompatible platforms, and have the documents look almost the same on each computer. Some industry pundits are calling this "the ultimate paperless office," although it will fall well short of that. Still, it gives users the first real shot at being able to save a file in a program for delivery to another user without worrying about that other user's computer.

A few attempts have been made at this same principle in the last few years, but with no success. Two Macintosh products have tried and failed. SuperGlue from Solutions Inc. is no longer supported by its maker, and DiskPaper from Farallon was never released, although it may appear some time in the future. Neither of these programs solved all the problems, however. They could only run on the Macintosh, and if the recipient of a file didn't have the same fonts as the sender, the output might look very different than when the original was saved.

Adobe's solution, currently called Carousel, solves all the vexing problems. Basically, on the sender's side, Carousel is a printer driver that creates a PostScript file. The file would contain normal text and some rudimentary form of graphics, and would probably be quite large relative to the document from which it came. Adobe would make Carousel drivers for Windows, for the Mac, for UNIX, and probably for some major MS-DOS programs like WordPerfect and 1-2-3.

Basically, on the sender's side, Carousel is a printer driver that creates a PostScript file. The file would contain normal text and some rudimentary form of graphics, and would probably be quite large relative to the document from which it came.

On the receiver's side, Carousel is a viewing package. The problem of fonts is solved by Adobe's Multiple Master fonts, announced earlier this year. These are special PostScript fonts that are very malleable. If the recipient doesn't have the exact fonts of the sender, the viewing program uses these malleable fonts to make letters that look a whole lot like the letters in the original. Short, fat letters would come out short and fat, tall characters tall, and so on. Each letter would be the same height, width, and slant of the original, making all of the text look very close to the original.

As good as Carousel sounds, it has a major potential problem: Adobe technology has always been very expensive. Adobe is currently selling Multiple Master fonts for $370 and $470 each. This would put the cost of Carousel at over $1000 per computer, a ridiculous price for most people. Other companies may come out with Multiple Master fonts using font conversion technology that is expected from companies like Altsys. Still, Adobe has said nothing about how they will price Carousel, prompting many to worry that it will be out of reach to most users, making it less than universal. If you can only communicate with people who have shelled out big bucks to Adobe, you may be talking to a very limited crowd. ■

Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

➤The Japanese dedicated word processor market continues to grow rapidly. Unlike users in the United States, many Japanese people do not want a full computer on their desks. The main industry group predicts that they will sell almost three million dedicated word processors during this fiscal year, at an average cost of $1100 per system. That is a 10% sales increase over last year.

➤Fuji Electric has developed an inkjet print head that has twice as many holes as current inkjet printers, yet can print at the same speed. This will give the printers more dots per inch or faster printing, depending on the user's desires. The company will sell the head to printer manufacturers.

➤Seagate announced a new plant in the Nagano Prefecture that will produce about one million hard drives a year. It will also manufacture hard drive actuators. Seagate will spend about $25 million on the plant.

➤Microsoft Japan has caused somewhat of a stink among customers by promoting a $225 upgrade from Multiplan and Works to Excel 3.0, then limiting the number of upgrades to 10,000 after the promotion began. Many people who ordered the upgrade were refused and told to buy the package at its full price, $750.

➤Nintendo expects to export over three million game base units from Japan this year, 50% higher than they had predicted a year ago.

Borland Keeps MicroTimes Index In The Black

Thanks to a stellar performance by high climber Borland, the Microtimes Stock Index was able to post a positive return during the six-week trading session ended December 12.

The bottom line for our index of thirty-three stocks tracked in the accompanying table: up a relatively strong 31.2 points, or just under 1%, before calling it quits at 3254.85. In stark contrast, the Dow Jones Industrial Average cascaded 110 points, or 3.65%, to 2895.13 as bad winds continued to blow from the national economic cold front.

As aforementioned, Borland stole the show during the period, storming ahead $26.25 a share, or 55%, before finally coming to a close at a new fifty-two-week high of $74.25. Borland completed its acquisition of Ashton-Tate last month, taking the dBase software concern from the ranks of the publicly held. Borland, not surprisingly, was the largest dollar and percentage-gainer of the lot for the period.

IBM, on the other hand, fell to its lowest level in a decade last month, when its stock price contracted $9.38 each, or 9.6%, to a close of $88.63, but not before trading as low as $83.50. Sharply lower sales projections for 1992 coupled with work force reductions of forty thousand employees led to a rash of downgrades by Wall Street analysts last month. The result: IBM had the dubious distinction of being the largest dollar-loser of all the stocks in financial barometer for the period.

Digital Equipment followed IBM's lead and toppled $6.38 a share to $55. Like IBM, layoffs have occurred at Digital, and like IBM, said news was a harbinger of bad things to come for the computer maker's stock price. Autodesk also had a rough go of it last month, as it plunged $9.25 a share, or a heart-pounding 21.8%, to $33.25. The reason: numerous Wall Street analysts cut their earnings estimates for the company last month. The result: Autodesk was the largest casualty on a percentage-lost basis last month. Sun Microsystems rose 4.6% en route to a close of $25.38. The company held an upbeat conference call with investors last month, saying US business remained strong. Dean Witter and Prudential placed "buy" recommendations on the stock following the conference.

In other news, Symantec completed a 2-for-1 stock split last month. Symantec closed the period at $38.25, up $4.38 a share.

EXCH	COMPANY		TICKER SYMBOL	CLOSING PRICE 10/25/91	CLOSING PRICE 12/12/91	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	PRICE/ EARNINGS RATIO	ANNUAL DIVIDEND RATE	ANNUAL DIVIDEND YIELD	52 WEEK HIGH	52 WEEK LOW
	SOFTWARE											
OTC	Adobe		ADBE	49.63	52.50	2.88	5.79	24	0.32	0.61	63.00	26.75
OTC	Aldus		ALDC	41.00	34.75	-6.25	-15.24	20	0.00	0.00	59.88	24.00
OTC	Autodesk	(L)	ACAD	42.50	33.25	-9.25	-21.76	14	0.48	1.44	62.25	29.50
OTC	Borland	(H)	BORL	48.00	74.25	26.25	54.69	-	0.00	0.00	74.25	25.00
OTC	Informix	(H)	IFMX	13.75	12.00	-1.75	-12.73	-	0.00	0.00	15.88	2.63
OTC	Lotus		LOTS	27.50	22.75	-4.75	-17.27	228	0.00	0.00	40.75	14.75
OTC	Microsoft	(H)	MSFT	89.50	102.00	12.50	13.97	37	0.00	0.00	105.25	48.38
OTC	Novell	(H)	NOVL	42.50	54.50	12.00	28.24	50	0.00	0.00	58.25	15.25
OTC	Oracle	(H)	ORCL	15.38	12.50	-2.88	-18.70	89	0.00	0.00	16.63	5.50
OTC	Software Publishing		SPCO	14.38	15.25	0.88	6.09	-	0.00	0.00	35.25	12.50
OTC	Symantec (s)	(H)	SYMC	33.88	38.25	4.38	12.92	56	0.00	0.00	38.25	12.50
	HARDWARE											
OTC	Apple		AAPL	51.25	49.38	-1.88	-3.66	19	0.48	0.97	73.25	39.00
OTC	AST Research		ASTA	22.00	17.75	-4.25	-19.32	8	0.00	0.00	32.75	13.13
NYS	Commodore		CBU	13.75	13.00	-0.75	-5.45	8	0.00	0.00	21.63	8.75
NYS	Compaq	(L)	CPQ	30.25	27.00	-3.25	-10.74	12	0.00	0.00	74.25	22.13
NYS	Digital Equipment		DEC	61.38	55.00	-6.38	-10.39	-	0.00	0.00	83.00	50.38
OTC	Dell		DELL	27.25	27.38	0.13	0.46	14	0.00	0.00	36.25	14.25
NYS	Hewlett-Packard		HWP	50.25	49.50	-0.75	-1.49	16	0.48	0.97	56.63	29.88
NYS	IBM	(L)	IBM	98.00	88.63	-9.38	-9.57	15	4.84	5.46	139.75	83.50
NYS	Silicon Graphics	(H)	SGI	41.38	40.25	-1.13	-2.72	31	0.00	0.00	48.75	22.25
OTC	Sun Microsystems		SUNW	24.25	25.38	1.13	4.64	14	0.00	0.00	38.63	20.75
NYS	Xerox	(H)	XRX	61.00	63.00	2.00	3.28	11	3.00	4.76	66.00	34.13
NYS	Tandy		TAN	28.13	25.00	-3.13	-11.11	10	0.60	2.40	36.50	23.38
	CPUs											
NYS	Advanced Micro Device	(H)	AMD	10.38	15.75	5.38	51.81	-	0.00	0.00	15.75	4.00
OTC	Intel		INTC	42.50	43.50	1.00	2.35	11	0.00	0.00	59.25	34.75
NYS	LSI Logic		LSI	7.75	7.50	-0.25	-3.23	-	0.00	0.00	12.50	5.38
OTC	MIPS		MIPS	9.38	8.50	-0.88	-9.33	-	0.00	0.00	20.88	7.50
NYS	Motorola		MOT	62.50	60.38	-2.13	-3.40	18	0.76	1.26	71.25	45.75
	COMMUNICATIONS											
NYS	AT&T		T	38.00	37.88	-0.13	-0.33	59	1.32	3.49	40.38	29.00
NYS	BellSouth Corp.	(L)	BLS	47.50	49.50	2.00	4.21	16	2.76	5.58	56.25	45.38
OTC	MCI		MCIC	26.38	27.63	1.25	4.74	14	0.10	0.36	31.88	17.88
NYS	Northern Telecom	(H)	NT	40.63	44.38	3.75	9.23	23	0.32	0.72	46.25	26.25
NYS	Pacific Telesis		PAC	39.88	42.25	2.38	5.96	16	2.12	5.02	47.00	38.50

NOTE: ASHTON-TATE WAS ACQUIRED BY BORLAND AND WAS REMOVED FROM OUR LIST. SYMANTEC COMPLETED A 2-FOR-1 STOCK SPLIT.
KEY: NYS=NEW YORK • ASE=AMERICAN • OTC=OVER THE COUNTER • (H)=NEW HIGH REACHED IN PERIOD • (L)=NEW LOW REACHED IN PERIOD • (s)=STOCK SPLIT

MARKET DIARY:

MOST ACTIVE ISSUES:

ADVANCES	15	LARGEST DOLLAR GAINER	Borland $26.25
DECLINES	18	SMALLEST DOLLAR LOSER	IBM $-9.38
UNCHANGED	0		
NEW HIGHS	10	LARGEST PERCENTAGE GAINER	Borland 54.69%
NEW LOWS	4	SMALLEST PERCENTAGE LOSER	Autodesk -21.76%

CLOSING QUOTES FOR CHART:

	CLOSE 10/25/91	CLOSE 12/12/91	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH
MICROTIMES STOCK INDEX	3223.68	3254.85	31.17	0.97
DOW JONES INDUSTRIAL AVERAGE	3004.92	2895.13	-109.79	-3.65
STANDARD & POOR'S 500 STOCK INDEX	384.20	381.55	-2.65	-0.69
N.Y.S.E. COMPOSITE	211.82	210.44	-1.38	-0.65
NASDAQ COMPOSITE	525.13	536.02	10.89	2.07

DATE	MICRO TIMES	DOW JONES
05/06/91	3209.84	2941.64
06/05/91	3178.90	3005.37
07/05/91	2850.09	2932.47
08/02/91	3132.83	3006.26
08/29/91	3265.70	3049.64
09/27/91	3216.77	3006.04
10/25/91	3223.68	3004.92
12/12/91	3254.85	2895.13

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HAVE MICROTIMES DELIVERED DIRECTLY TO YOUR COMPANY, FREE!

1. Do you have 20 or more people who would be interested in reading MicroTimes?
2. Can you provide an appropriate place for distribution of MicroTimes? (Racks available for distribution of 60 or more)
3. Are you located in the 213, 310, 714, 818, 408, 415, or 510 area codes?

If you answered YES to all of the above questions, fill out the following qualification form, fax or mail it in, and your corporate distribution will begin with our very next issue.

Each person who fills out a qualification form will receive a personal, hand delivered copy of MicroTimes with each bulk delivery.

QUALIFICATION FORM

YES, I want to receive **MicroTimes** # of copies desired 20___ 40___ 60 ___ more (Please specify)___

A. Which one category best describes your company?
- ❑ 01 Manufacturing of computer equipment, computers, DP hardware, peripherals
- ❑ 02 Software development
- ❑ 03 Manufacturing
- ❑ 04 Agriculture, mining, construction
- ❑ 05 Transportation
- ❑ 06 Communications
- ❑ 07 Utilities
- ❑ 08 Finance, banking, insurance
- ❑ 09 Real estate
- ❑ 10 Health, medical service
- ❑ 11 Legal
- ❑ 12 Education
- ❑ 13 Data processing, computer service
- ❑ 14 Government
- ❑ 15 Consultant
- ❑ 16 Wholesale/Distributor
- ❑ 17 Research/Development
- ❑ 18 Engineering/Architecture
- ❑ 19 Advertising
- ❑ 20 Sales/Marketing
- ❑ 21 Personnel Placement
- ❑ 22 Entertainment
- ❑ 23 Other

B. Which one category best describes your job title?
- ❑ 01 Owner, Partner, President
- ❑ 02 VP, Gen. Mgr.
- ❑ 03 Marketing Manager
- ❑ 04 Business Manager
- ❑ 05 Sales Manager
- ❑ 06 Project Manager
- ❑ 07 Data Processing Manager
- ❑ 08 MIS Director
- ❑ 09 Systems Analyst
- ❑ 10 Engineer
- ❑ 11 Educator
- ❑ 12 Bus. Microcomputer Specialist

C. How many employees does your company employee?
- ❑ 01 Over 5000
- ❑ 02 2500-4999
- ❑ 03 1000-2499
- ❑ 04 250-999
- ❑ 05 100-249
- ❑ 06 25-99
- ❑ 07 10-24
- ❑ 08 Under 10

D.What department are you in?
- ❑ 01 Accounting
- ❑ 02 Administration Management
- ❑ 03 Communications
- ❑ 04 Data Processing
- ❑ 05 EDP/MIS
- ❑ 06 Education/Training
- ❑ 07 Engineering
- ❑ 08 Finance
- ❑ 09 Marketing
- ❑ 10 Operations
- ❑ 11 Personnel
- ❑ 12 Production/Plant
- ❑ 13 Purchasing
- ❑ 14 Research & Development
- ❑ 15 Sales
- ❑ 16 Other

E. What is your department's estimated budget for computer and computer related peripherals for the next 12 months?
- ❑ 01 Over $500,000
- ❑ 02 250,000 to 499,999
- ❑ 03 100,000 to 249,999
- ❑ 04 50,000 to 99,999
- ❑ 05 25,000 to 49,999
- ❑ 06 10,000 to 24,999
- ❑ 07 Under 10,000

F. Through what channels will your department purchase its 5 computers and peripherals?
- ❑ 01 Computer Retail Store
- ❑ 02 Distributor /Wholesaler
- ❑ 03 Value Added Reseller
- ❑ 04 Consultant
- ❑ 05 Mail Order
- ❑ 06 Manufacturer
- ❑ 07 Other

G. How are you involved in your company's purchasing decisions?
- ❑ 01 I approve purchase
- ❑ 02 I specify product and vendor
- ❑ 03 My opinions influence purchase
- ❑ 04 I do not influence purchasing

H. For how many personal computers do you have this involvement?
- ❑ 01 1 to 5
- ❑ 02 6 to 10
- ❑ 03 11 to 25
- ❑ 04 26 to 50
- ❑ 05 51 to 100
- ❑ 06 100 or more

I. Does your company have personal computers?
❑ 01 Yes ❑ 02 No

IA. Currently Own
IB. Plan to purchase within next 12 months.

IA	IB	
		BRAND NAME COMPUTER
		AT
		286
		386 SX
		386
		486
		COMPATIBLE
		AT
		286
		386 SX
		386
		486
		MACINTOSH
		Mac SE or below
		Mac II up
		Amiga
		Atari
		Mainframe
		Mini System
		Network

Distribution Data (Please Print)*

Your Company

Your Name

Title

Business Address/Cross Street

City/State/Zip

Date Business Phone

Your Signature

**This is not a contract, you may cancel delivery at any time*

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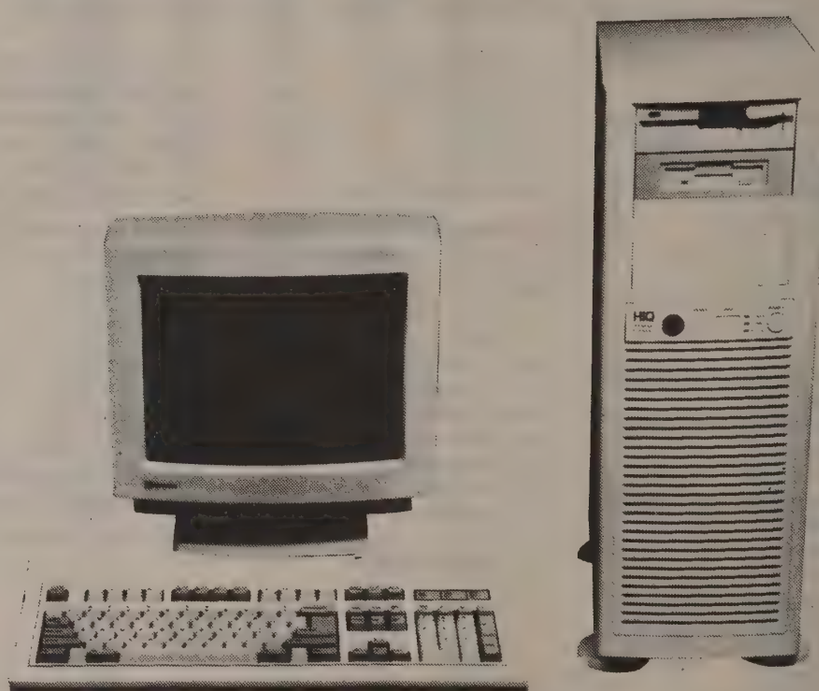
PC MAGAZINE

"... high cost doesn't always add up to high performance, the HIQ 425i tied for fastest on our processor tests and came in second on the memory tests."

Bruce Brown,
PC Magazine June 11, 1991

"... HiQ's computers are well contructed and inexpensive ..."

Bill O'Brien
PC Magazine November 12, 1991



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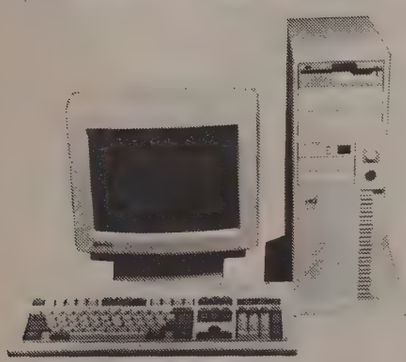
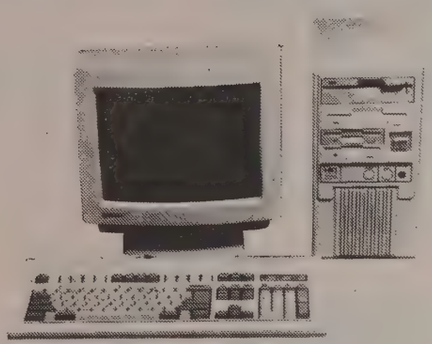
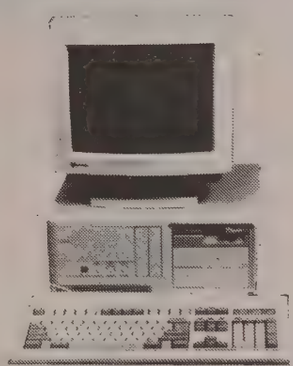
million customers.



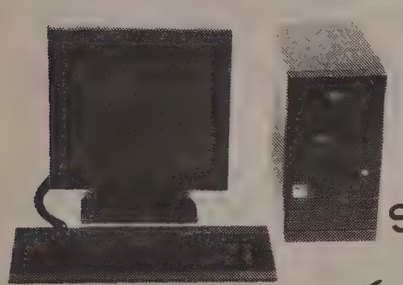
HIQ 433e (EISA) $3349
Intel 40486/33 MHz CPU
Basic System Configuration
200 MB, 18ms Hard Drive
128K SRAM Cache
14" SVGA Monitor w/ 16 bit SVGA card



HIQ 386SX $829/879
Intel 386/16 MHz or 25 MHz CPU
Basic System Configuration
40 MB, 28ms Hard Drive
14" SVGA Monitor w/ 16 bit VGA card



HIQ 386/25DX $1099
Intel 386/25 MHz DX CPU
Basic System Configuration
40 MB, 28ms Hard Drive
14" SVGA Monitor w/ 16 bit SVGA card



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Basic System Configuration
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64K SRAM Cache
14" SVGA Monitor w/ 16 bit SVGA card
Double Performance plus
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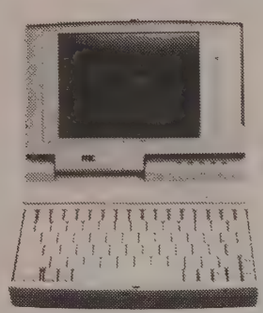
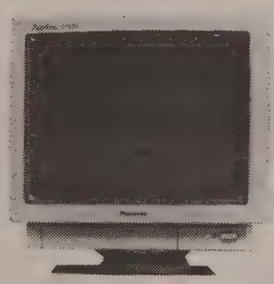


HIQ 386/25 SX $1995
Intel 386/25MHz SX CPU
2 MB RAM, 1.44 MB FDD, 60 MB HDD, Carry Bag, VGA Screen, AA Battery Pack, Cigarette Lighter Power Cord.



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Stockton - 1588 East March Lane, Stockton, CA 95209, (209) 472-7267, (209) 472-7269 Fax
Sacramento - 11015 Olson Dr., Rancho Cordova, CA, (916) 863-7076, (916) 863-7098 Fax

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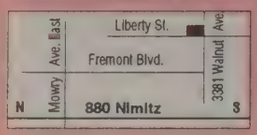

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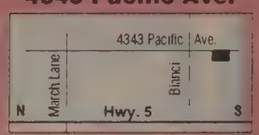

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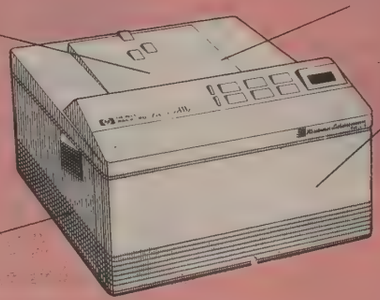

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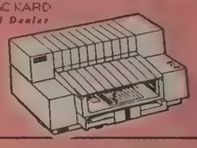

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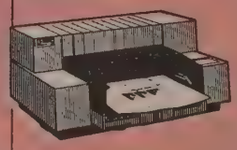

This color printer is ideal if you want primarily black output, but are eager to use up to 16.7 million colors and greyscale in your communications. Its 300 dpi color output rivals that of printers costing three times as much, plus it is networkable and prints on plain paper. Built-in print spooling plus Hewlett-Packard's dependable 3 year warranty.

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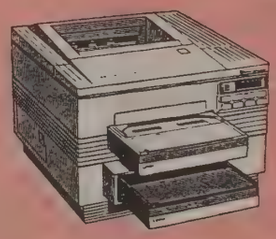

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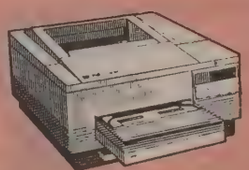

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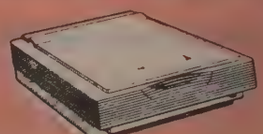

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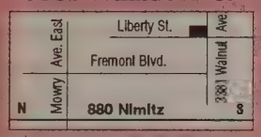

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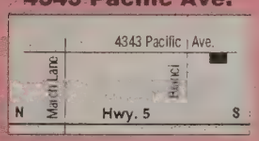

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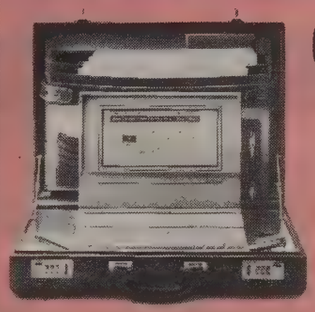

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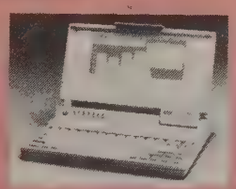

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Continued from page 32

be starting a new session or entering an alternate phone number in your script). Still, it works fine, the software is acceptable (though I like PSI's and Global Village's better), and it adds enormously to the value and versatility of the machine. (A number of third-party vendors have already announced faxmodems for the PowerBooks, but few 170 users are likely to be so hardcore as to rip out a bundled modem and put in another unless, say, it also receives faxes...)

•It's an ergonomic dream. The 170's screen is so sharp and clear it puts other Mac displays to shame. I notice that when I *do* have to switch to another Macintosh, especially in the midst of a PowerBook workday, the CRT-based display, the same one I've used happily for years, is very noticeably blurry. (Also, if you're concerned about ULF radiation, this screen doesn't produce any.)

The keyboard is a full-sized (minus ten-key numeric keypad) Classic keyboard. I would have strongly preferred the Standard keyboard, which the Portable has; it isn't mushy and the keys are better placed. However, the Classic keyboard has one huge advantage for this type of machine—it's much, much quieter than the Standard or Extended. At one seminar, the person next to me commented that he couldn't hear me typing over the sound of his own papers rattling. (As a matter of fact, the whole machine is much quieter than other Macs.)

Speaking as a confirmed hater of trackballs, I was not at all sure I could get used to the oddly placed one on the PowerBook. Within hours, it had become so transparent I'd forgotten it was there. It's really beautifully designed, symmetrical for right- or left-handed use. The curved thumb-rest cutout under the space bar is an especially nice touch.

Unlike any other portable computer I've ever seen, the PowerBooks feature a table-like handrest (which holds the trackball and two clicker bars at its center). While this may be funny looking, it turns out to be one of the PowerBook's best design features. For one thing, it balances the machine's weight in such a way that it doesn't feel like it's going to fall off your lap. For another, it forces you to type with your hands and wrists in more-or-less approved position for avoiding Carpal Tunnel Syndrome. In seven years of Mac use, I've found intense mousing much more productive of wrist and arm pain than constant typing; while intense trackball use on the PowerBook does tend to stress thumb-linked tendons, it's a big improvement over mousing.

The trackball is beautifully designed, symmetrical for right- or left-handed use. The curved thumb-rest cutout under the space bar is an especially nice touch.

RESOURCES:
Macintosh PowerBook 170, List Price $4599
Apple Computer
(408)996-1010

IN SHORT...

Buy one. Despite a little room for improvement, this machine is a triumph of design, offering the full functionality of the sainted SE/30 (and then some) in a convenient portable package. Longtime Mac users are in love with this machine, and well they should be.

Nicely done, Apple. ■

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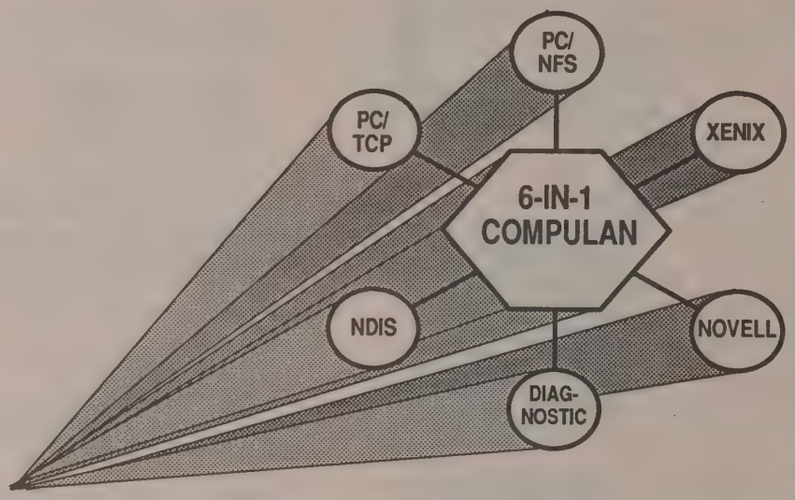

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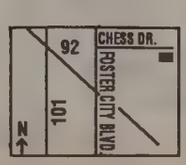

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JetTray 1500 (1500 sheet capacity) 456
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for all HP Laser&True HP Compatibles 139
Super Cartridge 2 for HP II, IID, IIP, III, IIID 249
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Desk Jet 500 Professional 99
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PACIFIC DATA (for HP) see top of next page
PANASONIC see Panasonic in section #21
MEMORY for Laser Printers
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Ram II 4000 (PS/2-5,6,7,80) 175
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KOUWELL 640K RAM Card (XT only) 29
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Evercom 9600 Baud Internal v.32 w/ MNP5 495
Evercom 2400 Baud External w/ MNP5 185
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Pocket Modem for Laptop 2400 w/ MNP5 215
FRECOM
Fax 96 95
Fax 96 w/ 1 Liner & Far Fetch Fax 135
Fax 96 & modem (DOS / Windows) 119/129
Fax 96 w/ 1L&FFF & modem (DOS / Windows) 167/185
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SmartModem 2400B Internal/ External 245/385
9600 V-Series v.42 & x.25bis external 489
Optima 96 v.32,v.42,v.42bis, external 449
Ultra 9600 external 655
Ultra 14400 v.32,v.32bis,v.42,v.42bis external 795
INTEL
9600EX v.32,v.42,v.42bis 459
14400EX v.32,v.32bis,v.42,v.42bis 555
SatisFaxtion card 369
US ROBOTICS
Courier96 HST DS v32,v32bis,v42,v42bis I/E .795/875
Courier144 HST DS v32,v32bis,v42,v42bis I/E 565/585
ZOLTRIX
2400 baud modem w/ MNP5 55
96/24 send & receive fax/modem w/ MNP5 89
96/24 send & receive fax/modem MNP5 v.42 119

16 MONITORS

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CM2085MU 20", 1280x1024, .31, Non-Int 1695
MATSUSHITA (VIEWSONIC)
ViewSonic 4e 14" , 1024x768, .28, Int 325
ViewSonic 5 14" , 1024x768, .25, NI 515
ViewSonic 5+ 14", 1024x768, .25, NI 545
ViewSonic 6 14", 1024x768, .28, NI 375
ViewSonic 7 17", 1280x1024, .28 1165
ViewSonic 8 20", 1280x0124, .31, NI 1655
MITSUBISHI (w/ base)
HL6605ATK 16", 1280x1024, Non-Int 945
HL6945ATK 20", 1280x1024, .31, NI 1695
BNC Cable 39
NANAO
9070U 16", 1024x768, .28 NI 945
9080i 16", 1280x1024, .28 NI 1045
9500 20", 1280x1024, .31 NI 1745
NEC
3FGX 15", 1024x768, .28 615
4FG 15" Flat, 1024x768, .28, NI 745
5D 20", 1280x1024, .31 1995
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C1381i 14" Super VGA, 1024x768, .28 335
C1395 14" 1024x768, .28, NI 445
POWER II
3E 14" Super VGA, 1024x768, .28, Int 299
4E 14"Multisync, 1024x768, .28, NI 349
SAMSUNG
MA2565 12" mono amber 75
MZ4571 14" mono paperwhite 115
ML4571 14" VGA mono 640x480 125
CSA 7571 17", 1024x768, .31, Non-Int 875
SEIKO
CM1450 14", 1024x768, .25, Non-Int 549
SONY
1304 14", 1024x768, .25, Non-Int 569
1604S 17", 1024x768, .25, NI 1025
1936 20", 1280x1024, .30 NI 2495
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VLSI 286-12 115
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386-33 64K cache Gemini (32MB max) 555
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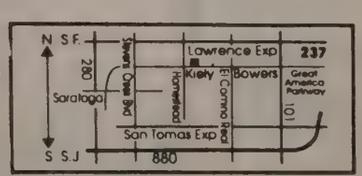

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- Headlines Cartridge (for HP II, IID, IIP) 185

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- Pacific Page P.E. (for HP IID,IIP,III,IIID, IIIP) 325
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- 386-40 128K cache, AMI BIOS (32MB max) 655

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- SM486-33/40 w/ 256K cache w/o CPU 315

18 MOUSE

APPOINT
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GENIUS
- Cbx mouse (3 button) 19
- GM-F302 mouse (3 button, PS/2 compatible) 42

KENSINGTON Expert mouse (serial trackball) 99

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- Cordless Mouse 85
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- First Mouse serial 37
- Mouseman Serial / Bus 59/64
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- Scanman 32 / 256 ..... 147/259
- Scanman 32 w/ Catchword 195
- Trackman Serial / Bus 65/69
- Trackman portable mouse 99

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- Mouse Serial 200PPI 69
- Mouse Serial / Bus 400PPI 89
- Mouse Serial / Bus (400PPI) w/ Windows 149

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- Omni Mouse (2 button) 29
- PC Mouse III (optical) serial 69
- PC Mouse III Bus w/ Power Panel (optical) 89
- PC Trackball 49
- The White Mouse w/ Power Panel 56

19 NETWORK

- EasyOffice Network (share printers,plotter,modem; send messages & transfer files) for 4PC's / 8PC's 375/555
- Remote Power On/Off controller (Novell certified) 159

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  - 5 packs (5 boards 1 manual) 799
- 3C503-TP 8 bit / 5 packs 269/1160
- 3C507 16 bit / 5 packs 289/1250

ARTISOFT
- Lantastic AE-2 Ethernet starter kit,10Mbps, v4.0 469
- Lantastic AE-3 Ethernet starter kit,10Mbps, v4.0 535
- Lantastic 2Mbps starter kit / adapter 355/145
- Lantastic Z (2 stations) 89
- Lantastic AE-2 Ethernet adapter 215
- Lantastic AE-3 Ethernet adapter 245
- Lantastic AE-2/T 16bit 10Base-T adapter 210
- Lantastic AE-1/T 8bit 10Base-T adapter 149
- Lantastic AE-2/AE-3 64K RAM upgrade 45
- Lantastic AE-2 / AE-3 Remote Boot ROM 45
- Lantastic /AI software (individual node) 69
- Lantastic Ethernet Software Kit (NOS v4.0) 79
- Lantastic for Windows Network Utilities 175
- Central Station Connectivity Processor 405
- Peer-Hub 10Base-T concentrator 275
- Peer-Hub AUI interface kit 275
- Hub installation kit 145
- Network Eye (Remote Control Access Program) 129
- Sounding Board adapter kit 72

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- NE1000 / NE2000 Boot PROM 32
- Netware Lite (w/ DR DOS 6 (limited offer)) 74
- Netware 2.2 5 / 10 users 499/1090
  - 50 / 100 users 1935/2955
- Netware 3.11 10 / 20 users 1375/1935
  - 100 / 250 users 3885/6885

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- Ethercard Elite 16 combo (coax/10BaseT) 225
- Ethercard Elite 16T (10BaseT) 207
- Ethercard Plus Elite 8bit / 16 bit 143/173
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20 POWER SUPPLIES

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- BJ-10ex (Bubble jet)360 dpi,37K buf 319
  - Auto Sheet Feeder 79
  - Bag / Battery / Print Head Cartridge 39/45/22

CITIZEN
- GSX 200 (9 pin) 165
- GSX 130 / GSX 140 Plus (24 pin) 239/299
  - Color Option for above printers 45
  - Auto Sheet Feeder for GSX 140 109
- GSX 145 (24 pin, 132 column) 379
  - Color option for GSX 145 65
- PN48 notebook printer, 1ppm, 2lb w/ battery & carrying case 339

EVEREX ABATON (Postscript compatible)
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FUJITSU DL1100 mono / color 295/339

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- Accessories:
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  - Envelope Tray for IIP,IIIP 79
  - Envelope Feeder for IIID 295
  - HP Postscript Cartridge 395
  - Legal Tray for HP II & III 69
  - Lower Cassette (w/ letter tray) IIP,IIIP 160
  - Toner for HP II / IIP/ III/ IIIP 85/75/85/75
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- 1124i / 1624 / 1695 ..... 279/349/359
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  - Developer KX-PDP2 95
  - Drum KX-PDM2 99
  - Envelope Tray KX-P431 59
  - Fonts Card 95
  - Legal Tray KX-P425 45
  - Ozone Filter KX-PFT2 26
  - Toner KX-P451 39
- 4450i Laser, 11ppm 1055
  - 1MB / 2MB / 4MB Memory Card 99/139/219
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  - Drum KX-PDM1 145
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- Postscript Cartridge for HP II 239
  - Type Cartridge 1: Display Faces 166
  - Type Cartridge 2: Best Sellers 166
- Streamline for Windows 125
- Type Align for Mac / Windows 63
- Type Manager for Mac / Windows 59
- Type Set 1/2/3 for Mac / Windows 65/65/99
- Type Set: Invitations & Awards 87
- Type Set: Letter, Memos & Faxes 87
- Type Set: Overheads & Slides 87
- Type Set: Spreadsheets & Graphs 87

MICROSOFT
- DOS 3.3 / 4.01/ 5 ..... 65/29/65
- DOS 4.01 w/ Windows 99
- DOS 5.0 w/ Windows 125
- Entertainment Pack for Windows I / II / III 28
- Excel for Windows 299
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  - Maxx Control Yoke / Pedals (IBM) 49/39
- Learning DOS 35
- Microsoft C 6.0 299
- Microsoft C 6.0 & Software Development Kit 465
- Money for Windows 49
- Multimedia Development Kit 299
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- PC Mail Server for DOS & Windows 435
- Power Point for Windows 299
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- Windows 3 Device DriverTool Kit 305
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- Ventura Publisher 3.0 Gold Series DOS / Windows / Mac 199

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  - C++ 3.0 & Application Frameworks 455
  - Paradox 3.5 445
  - **Quattro Pro 3.0** 229
  - Screenery (Windows wallpaper, screen saver) 25
  - Turbo C++ 2nd edition (Dos) 63
  - Turbo C++ for Windows 99
  - Turbo Debugger & Tools 2.0 99
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- Carbon Copy Plus 6.0 109
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  - PC Tools 7.1 w/ Anti-virus 99
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- Correct Grammer for DOS/Windows 49/59
- dBASE IV 1.1 435
- DR DOS 6.0 68
- Definition Plus! (American Heritage Dict.) 59
- Direct Access 63
- Fastback Plus 2.1 / 3.0 ..... 112/117
- Geoworks Ensemble Pro 122
- Grammatik IV for DOS / Windows 57
- hDC Windows Express 55
- HP New Wave 3.0 104
- Hardvard Graphics 3.0 355
- Intermission for Win (screen saver) 29
- Labels Unlimited 3.0 57
- LapLink Pro v4 89
- Lotus 1-2-3 for Windows 389
- Lotus 1-2-3 Rel 2.3 / 3.1 for DOS 315/379
- Lotus Ami Pro for Windows 279
- MacPrint 85
- More Fonts / Display Faces 77
- Multimate 4.0 235
- Norton Back Up for DOS & Windows 79
- Norton Commander 3.0 84
- Norton Desktop for Windows 95
- Norton Utilities 6.01 112
- PC Anywhere IV 115
- PFS: First Choice (w/ Prodigy start-up kit) 79
- Pacioli 2000 24
- PageMaker for Windows 4.0 469
- Photostyler for Windows 498
- Pro-scan (virus identifier & remover) 40
- Professor Windows 32
- Quarterdeck DesqView 286/386 ..... 79/125
  - Qemm 386 v6.0 / Manifest / Qram 62/41/45
- Quicken for DOS/ Mac/ Windows 49
- QuickPay (payroll) 39
- Screen Craze 29
- Sound Blaster / Sound Blaster Pro 115/199
  - CMS Chip / Speaker / MIDI kit 29/29/59
- Speedstor 6.0 61
- Speedstor Plus (for SCSI hard drive) 75
- SpinRite II 60
- Stacker Data Compression 2.0 88
- The Far Side (computer calendar) 49
- Ventura Publisher Gold for Windows 465
- XTree Gold 2.5 89
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24 TAPE BACKUP

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- DJ-20 (250MB) QIC-80 295
- QFA-700 (700MB) 775
  - AB-11 External tape port 49
  - Cable (2 Floppies & tape back up) 9
  - FC-10 Controller 95
  - KE-09 Ext kit w/o controller 75
  - TC-15 controller w/ data compression 195

EVEREX
- EV-811 8 bit QIC-02 for XT,AT 105
- EV-880 floppy tape adapter for AT 65

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- FS1200 1.3GB,4mm,SCSI cont,int/ext 3595/3905
- FS2100 2.2GB, 8mm, w/ SCSI cont, ext 4895
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- Graphics Ultra Plus 1MB (VRAM) 585
- Graphics Vantage Plus 512K/1MB(DRAM) 325/349

DIAMOND
- Speedstar Plus 1MB w/Sierra Hi-color chip 215
- Stealth 1MB VRAM w/ Sierra Hi-color 1280x1024 315

EVEREX
- EGA Card 59
- Viewpoint NI 256K/512K 129/149
- VRAM (1MB DRAM) 285

GENOA 6400A 512K 159

HERCULES Graphics Station 1MB/3MB 545/795

ORCHID
- Fahrenheit w/ 1MB Hi-color,1280x1024 285
- ProDesigner IIs 1MB / (with Hi-color) ..... 159/(189)

PHOTON Ultima Turbo 1MB (1280x820) 250

STANDARD TECHONOLOGIES
- VGA 4000 1MB w/ Sierra Hi-color chip 169

UNITED SOLUTIONS
- Image 800x600 16bit w/256K 55
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VIDEO SEVEN
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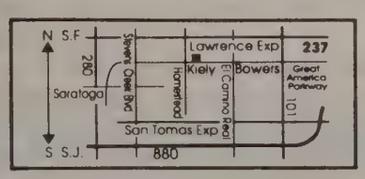

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Continued from page 48

ious to try something else. I feel that this is a market that is not being addressed at this point.

Wellllll…I think you're right.

We saw Apple start off with individuals and then pound on the door of corporate America and gradually get in a little bit through the back door. They're not even in that far now. But they got in through the back door.

We saw IBM walk in the front door of corporate America and not pay any attention to individuals, and gradually over time grab the dominant share of individual use.

So our path, for good or bad, is going to be more like IBM's. We're going to get our company very successful by selling to corporations. And then hopefully as we can drive the prices of our products down over time, we can become more desirable for individuals.

We still do have a very strong commitment to higher education, however, and we still do sell our products at a pretty deep discount to higher ed. We're doing very well there.

The other thing that's happened is that in our industry we've seen radical changes in the distribution channel. What happened was that the dealers...

Which are a moribund species, I think.

It's over. What happened, though, if you go back and analyze it, was that corporate America needed the dealers five or six years ago. They didn't know much about PCs, they didn't know much about networking. The dealers helped them a lot, and the dealers, you know, charged for that. And there were some companies like Businessland that even built their whole business just focusing on that.

They didn't actually add much value.

Oh, I think they did, five or six years ago. I think they did. What happened was, the MIS departments started hiring really smart people. I used to joke about how bad they were. You go to them now—they're full of really bright people.

These people had the advantage that they were paid a little more than the dealers, so they didn't turn over much. They knew a lot about the internal workings of the companies, and the dealers didn't, and they were generally quite smart. So one day the purchasing manager at a big company woke up for the first time and said, "Why are we paying for support twice? We're paying our internal group, and we're paying this dealer." And they changed their priorities for purchasing PCs to price, price, price.

And all of the margin got driven out of the dealer channel, which meant that all the people who knew how to create demand—like go give a good demo, tell you how to make it work when you had a problem—these people left, because the channel couldn't afford them. The channel became demand fulfillment, versus demand creation and fulfillment.

What's happened now is, since the channel's become just fulfillment, somebody woke up one day and said "Why can't we do this over the phone with Federal Express?" And in my opinion, all of the demand fulfillment is headed towards mail order.

So why can't NeXT do that?

Well, let me keep going.

All the demand fulfillment is going to be in the Dell model. Telebusiness. In my opinion, superstores are just a pit stop on the way to telemarketing. I don't even see a reason to have a superstore. Why get in my car and drive somewhere and pick it up when I can have it delivered to my house tomorrow?

So I think that the channel has been decimated, and that all commodity products will be fulfilled through telebusiness.

Now the big question is, what about innovative new products, where demand still needs to be created? You can't create demand through telemarketing. You can't create demand in a superstore. You can't even create demand much in the existing few dealers that are left.

Especially for a product like yours, which is an environment. You have to actually experience that environment.

You have to have somebody show you.

And you have to be there for a while.

Right. Yes. I agree. And you have to have a little hand-holding while you make the transition.

The learning curve has a cliff right at the bottom, but it's actually a pretty smooth climb after that.

Right. I agree. But how do you create demand in a channel that's purely optimizing for demand fulfillment? We saw Compaq come out with their SystemPros and fall right on their face. Because even their dealers, which were some of the best ones, couldn't create demand any more.

Well, I think the answer, for good or bad, is a direct sales force. We saw Sun grow a three billion-dollar company in the last five-six years, off a direct sales force creating demand for their products. And our model of selling has changed—we are selling our products primarily with our direct sales force. We have 120 professionals in the field.

So it sounds as if I've been trying to get you to do something you're already doing. I'm trying to convince you to sell direct, and you're going to direct sales.

We are. We have fifty reps, fifty SEs, and twenty management people and support people in the field. And that's how we are selling most of our product today.

Now the direct sales people don't all have to work for us, so we're signing on VARs, who have direct sales forces, to augment our direct sales forces. And we then have some high-end dealers, almost VADs more than VARs.

We did a really smart thing. We commission our direct sales people for any product that lands in their territory, no matter what channel it came through. So they can sell it themselves, a VAR can sell it, or a dealer can sell it. They make the same amount of money. So when they get an order for ten, twenty systems, they call up the dealer and give it to them. Because they don't want to take their expensive time, they'd rather go focus on a hundred-unit order.

So it's actually working pretty well between the dealers and the VARs and our direct sales people, because we eliminated channel conflict.

Okay, but what happens if somebody calls me up—as they do like every other day—and says, "Where do I buy a NeXT?" And they're calling from Pittsburgh, and I don't know if there's a dealer in Pittsburgh, and chances are if there is, he doesn't know what the NeXT he's selling really is...

I guess the corollary to this question is: What does somebody who is a devout NeXT user and advocate do to help NeXT? I see a great deal of frustration and disaffection in the NeXT user community, which is about as rabidly devoted as anything I've seen outside a religious group, and they just don't feel like there's anything they can do.

Well, to make NeXT successful, we've got to make NeXT successful in corporate America.

You're probably quite right about that, but I have one caveat. As Mitch Kapor [founder of Lotus] learned, eventually a company resembles its market more than its maker.

[Long pause. He smiles thoughtfully.]

We'll see.

We'll see.

And I guess I've met a lot of people in corporate America that I wouldn't mind NeXT resembling. There's a lot of good people out

When we did the Macintosh, we never anticipated desktop publishing. But we were smart enough to see it happening nine or twelve months later. We changed our whole business strategy to focus on desktop publishing. Desktop publishing became the Trojan Horse that got Macs into corporate America.

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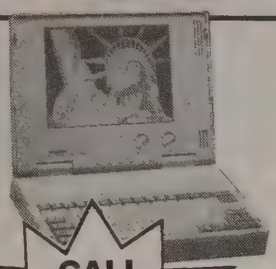

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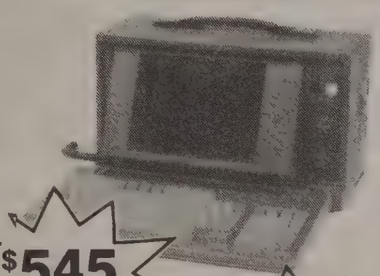

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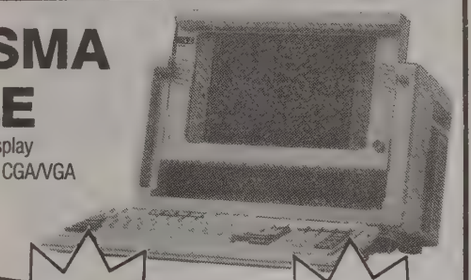

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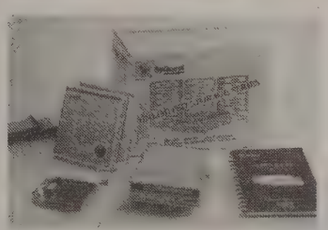

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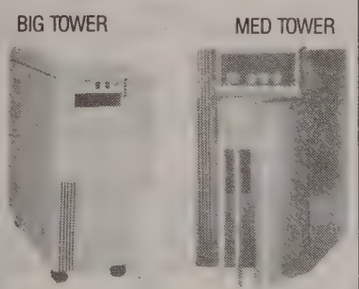

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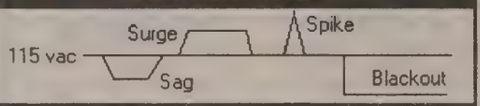

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there. As an example, there's a company called O'Connor that has hundreds of our machines; they're in Chicago. These are a bunch of young bright kids who have gone and outperformed almost every old-line firm in the financial services industry. They are great. They look like us, they talk like us, they live in Chicago, they started this commodities trading firm, and they cleaned up in their industry by bringing technology into that.

Well, look, I'm a Republican. I don't have a knee-jerk reaction to business, but there are elements of the corporate environment that... You actually led a revolution that empowered individuals in corporate America...

Mm-hm.

...And I keep worrying about the possibility that the network is the mainframe's revenge. That you're going to be leading the counter-revolution whether you want to or not.

No, I don't see it that way. We make computers that you can disconnect from the network any time you want.

But I guess I view the network as so important now, that it's just becoming ubiquitous. And the reason is because computers are being used more and more to communicate than they are to compute. Just like we burned a ton of CPU cycles to make the user interface great on Macintosh, we're burning a ton of CPU cycles now to help people communicate. That's profound to me, and I don't think it's bad.

I mean, I subscribe to a lot of your ideas. *[Referring to the Electronic Frontier Foundation.]* It's got to be open, it's got to be pervasive, and there can't be economic barriers to people hooking onto this network. But I think the network, the concept of the network to connect us all together with the right tools, is definitely the next big step in our industry.

Well, I agree. I suppose my main mission is to connect everything to everything else.

Right.

So I don't see that as the mainframe's revenge. I don't.

But there remains a sort of totalitarian potential in networked computing that concerns me...

Well, I view it as very important that you always ought to be able to go off under a tree by yourself with your computer and do something. But I don't think it's going to be very long before your computer's got to have some radio net or something in it, because it's going to be impossible to do anything without being hooked to that net. Sort of like having a telephone that's not plugged in, that's not a cellular phone, and going out and sitting under that tree. It's just not going to be too useful.

Another aspect of your marketing strategy which concerns me is that I wouldn't want to see the SIGGRAPH bunch left out. Or the music types. There's a wonderful hybridization that takes place between the nerds and the artists—more juice there than anyplace else in this culture.

Well, look at our actions, and I think you'll see we're not leaving any of that stuff behind. I think Wall Street's going to love [Pixar's] RenderMan, but we're doing it for a lot of other reasons than that.

Still, I wouldn't want to see this elegant thing become the faithful servant of MIS and nothing else.

Right. But you should see the people buying these things. Let me give you an example that's kind of not too traditional.

Bozell Jacobs is about the tenth-largest ad agency in the country; their biggest customers are Chrysler and American Airlines. They bought several hundred of our computers, and we figured they were just using them for productivity until we met the art director down there, who was one of the key people that made the decision to go with NeXT.

He said, "Well, that's one of the things, but that's not why we bought them." We said, "Why did you buy them?" He said, "Well, did you ever see these ads for American Airlines in the newspaper that list all the flights and the prices for the next day?"

"Yeah..."

"Well, there's 150 of those that run every night around the country, and they're all different because of different cities. You know how we make those? We get onto the SABRE system manually every night, we typeset them all manually. We're writing a custom NeXTstep app that logs onto the SABRE system automatically, grabs the data, typesets it automatically into the app, sends them onto the network around the country, and prints them locally at the local cities."

There's an *art director* writing this app. This is because of PostScript and because of your database stuff. We used to think about art directors getting competitive advantage by getting a Macintosh and some page layout program. The world's moving beyond that.

So I think we've got to be careful when we say, "Let's not lose traditional multifaceted markets." Those multifaceted markets tomorrow are not what they were yesterday. And that's why we think we are able to give some of them what they need to take the next step.

This is especially true in multimedia, where a lot of people who have never given the Mac much thought are suddenly going to find themselves trying to send video postcards.

Hey, I'll give you an example of multimedia. You know, one of our most multimedia-intensive customers is the Canadian Mounted Police in Toronto. *[laughs]* They're using NeXT systems to manage their whole police department. Multimedia out the wazoo.

This is another one of these areas where I worry about the maker and the market.

Yeah, I know. *[laughs]* I know. It's funny, though.

Actually, the Mounted Police don't bother me anything like as much as my recent discovery that the CIA is one of your biggest customers.

I can't comment on that. ■

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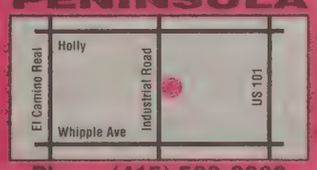

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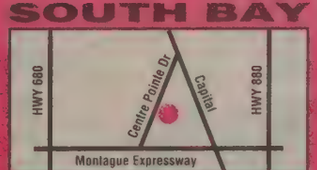

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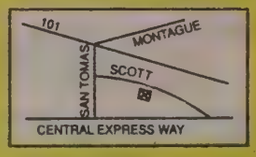

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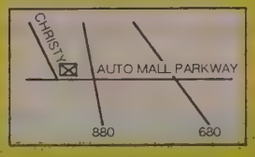

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80MB	265	210MB	535
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- NORTHGATE Omnikey Keyboard
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- 2 Serial, 1 Parallel, 1 Game Port

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US MACH 486-20C	1690	1890
US MACH 486-33/64k Cache	1990	2190
US MACH 486-33/128k Cache	2050	2250
US MACH 486-33/256k Cache	2070	2270

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486-33 EISA	1390	1550
386-33 GEMINI	590	750
486SX-20	590	750
386SX-25	270	430

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Pixel Hicolor VGA - 1MB

FX-72Hz

Pixel S3 Windows Accelerator w/1MB VRAM $245

$145

NORTHGATE OMNIKEY

101 KB OEM	$25	101NI	$65
Keytronics 101	45	102	65
Focus 2001	55	ULTRA	95

THE 5th ANNUAL MICROTIMES

100

Continued from page 68

came out a large number of users had switched to Excel.

Also on the downside, but to Manzi's credit, is that he pulled the plug on the ambitious CD-ROM database project Lotus Marketplace: Households after three hundred thousand private citizens objected to the sale of their personal data and demanded to be removed from the listings.

Regrettably, Lotus hasn't seen fit to drop its litigious approach to look-and-feel, either.

And on the other hand, Manzi seems to be well along in the process of moving Lotus from a single-product company to a provider of across-the-board solutions. Ports of 1-2-3 to virtually every significant computing platform (including the long-awaited and recently shipped Macintosh version) are well under way; Ami Pro 2 is making good headway at becoming the word processor of choice in the Windows environment, eroding the constituencies of such longtime stalwarts as WordPerfect and WordStar; Notes and cc:Mail have proved valued tools for collaborative computing in networked environments and are key components in the company's future evolution.

Scott McNealy

President and CEO
Sun Microsystems

McNealy continued to keep his customers and shareholders happy in 1991 with gratifyingly high sales and profits, with the commercial sector the fastest-growing portion of its customer base.

Acting to keep flexible and competitive in the changing times ahead, McNealy split the Sun into five separate operating companies, each specializing in a particular function—Sun Microsystems Computer Corporation, which supplies hardware; SunExpress, to deliver non-system SPARC products; Sun Microsystems Laboratories, for R&D; SunSoft and Sun Technology Enterprises, which develop software and some hardware for SPARC and other standard UNIX environments.

Also in 1991 Sun's internationalization efforts paid off significantly, as for the first time its sales outside the US exceeded domestic sales.

Larry Michels

President and CEO

Doug Michels

President and CEO/Senior Vice President
The Santa Cruz Operation

Larry Michels

This father-and-son team has taken the still-private company from startup in 1979 to a global organization with major presence in eleven countries. Their specialty—UNIX software systems for Intel-based computers. And despite recent inroads by Southern California's Interactive (recently acquired by Sun to port the Solaris operating system to Intel platforms as part of its strategy in multivendor environments), they're the leaders in that market.

In 1991 SCO, part of the ACE consortium, shipped its latest release of the SCO Open Desktop development system, which provided enhanced tools to allow software vendors to create networked graphical UNIX applications for Intel and MIPS platforms.

Doug Michels

Asked at the PC Outlook conference whether he considered Solaris a threat, the senior Michels was unconcerned, saying it took a lot of relationship building with hardware vendors to make system software work well. Not only does SCO have a twelve-year edge in relationship building, but it's not unlikely that Intel hardware vendors might look askance at close relationships with aggressive rival Sun.

Nathan Morton

President and CEO
CompUSA

Morton scored a major coup this year with the deal by which CompUSA became an authorized dealer for most of the Macintosh product line. He also compounded the national superstore's success in the Southern California market by opening stores in the Bay Area, further reinforcing the conviction of many observers that superstores are the computer-retailing Wave of the Future.

Tim Mott

President and CEO
MacroMind

Reader Jim Mayer says of Mott, "In addition to engineering the MacroMind-Paracomp merger, he's a guy with significant ideas about the future of computing." Indeed, in a year at MacroMind, Electronic Arts veteran Mott has given the multimedia-company-in-search-of-a-market a sharp focus and winning strategy.

Among his accomplishments—a merger of MacroMind with Paracomp, bringing some great 3-D modeling technology to the company, and the acquisition of MacRecorder and other multimedia-related products from Farallon, which decided to focus on its networking business.

Therese Myers

President and CEO
Quarterdeck Office Systems

Another ongoing success story, Quarterdeck went public with its first stock offering this year. As for its product line, Myers's commitment to customer service and helping users get the most out of their PC hardware without spending big bucks led DESQview to a new dimension with the arrival of DESQview X, a product that allows users to access and developers to create applications that run on UNIX-based X Windows servers from the PC that's probably what they have on their desktops.

Ray Noorda

Chairman, President, and CEO
Novell

Noorda has grown Novell from a small and relatively obscure contender to PC networking's leading standardbearer, and judging by the alliances he's implemented in the past year he's only getting started. In addition to the merger with Digital Research, which gave Novell access to excellent operating-system tools and considerable independence from Microsoft, he's joined forces with both Hewlett-Packard and UNIX System Laboratories (creators of UNIX System V) to build sophisticated networking platforms. Commenting in October on another year of substantially increased sales and revenue, Noorda was quick to credit these and other strategic partnerships as a vital element in the company's success.

Spreading joy among Novell stockholders, the company announced a two-for-one stock split in August. Hinting strongly at things to come, it's now describing itself as an operating system software company.

John Norstad

Author
Disinfectant

While other vendors have been known to sow hysteria about viruses and capitalize on user panic, Norstad takes a different approach. He keeps updating Disinfectant to meet the latest virus hazards in the Mac universe—and gives the software away. For which he receives the undying gratitude of thousands of Mac users trying to keep their data secure from marauding virus programs, which are probably not as ubiquitous as some would have us believe but are, nonetheless, a seriously disagreeable experience when it's your computer they happen to invade.

Peter Norton

Founder
Peter Norton Computing

Although the company is now owned by Symantec, Norton continues to be active, playing a vital role in steering its product development. Upgraded versions of Mac and DOS versions of the Norton Utilities shipped to hordes of happy customers during 1991, and the Norton Desktop for Windows brought those vital Norton tools to users of the bestselling new environment.

Joseph H. Oakey

President
Autodesk Foundation

Oakey, a forty-one-year veteran of the world of education, writes: "There is a loud and clear call to action which is being sounded nationwide: Public schools must be brought into the information age through radical restructuring; the responsibility for our schools belongs to each and every one of us; and the time to act is now!

"Through the Autodesk Foundation I have set out on an ambitious program to improve the quality of education for students in America. By designing model education progams and establishing partnerships to disseminate their successes nationwide, we plan to do our part in bringing schools into the information age.

"However, real and lasting change will come about only if many forward-thinking educators, business leaders, and community leaders work together in a spirit of cooperation and collaboration. We hope that our efforts will inspire other corporations, educators, and organizations to play an active role in transforming our educational system."

We concur with Oakey in thinking industry/education partnerships are long overdue, and applaud the Foundation's results so far, notably in the integrated studies program it's pioneered in Marin County.

Implemented in 1990 at Sir Francis Drake High School, the program Oakey helped create allows students to learn in an independent, interdisciplinary, and highly computer-based (students use software ranging from dBASE and Lotus 1-2-3 to Autosketch and Animator) environment, and also has them instruct younger students in the same subject matter. Despite a longer school year than conventional programs, it's a big hit with students, and its results have been impressive enough to win three more years of funding.

Ted Papes

President and CEO
Prodigy

Papes has taken a lot of flak all year for Prodigy's policies. The dread Censorship hot-button was pushed regularly, and Prodigy, which sees its business as marketing rather than providing a "free speech medium," insists on its right to "publish" only remarks that meet its standards. (According to a recent report on CNN,

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Digital Research's latest version of DR-DOS includes features that every version of DOS should include. Task switching, hard disk caching and compression, on-line documentation, security and PC-to-PC file transfers are just a few reasons for considering this feature-rich version of DOS

Features include:

- Switch between up to 20 programs
- Leaves up to 627k RAM for your programs
- On-line help gives instant explanations
- Automatic file compression can double storage capacity
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Mini 33MHz 486 Motherboard with Cache
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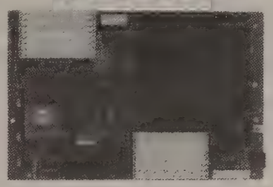
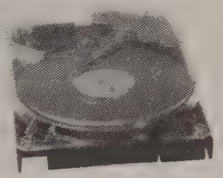


The MCT-M486-33 is a high performance mini-sized motherboard, well-suited to CAD/CAM/CAE workstation tasks as well as LAN server applications.

40 MHz 386DX Motherboard $549

IDE HARD DRIVES



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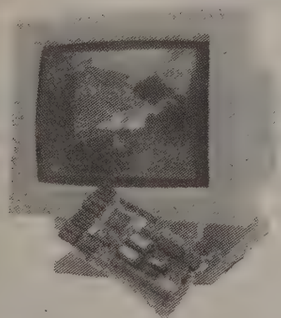

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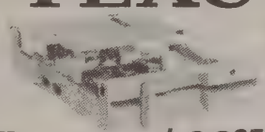

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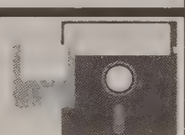

5-1/4" 360Kb DS/DD disks	25/$7.25
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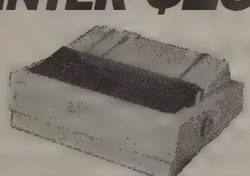
EPSON LQ-570 PRINTER $259.95



- Printer includes 12 fonts
- Fast print up to 315 cps
- 360 x 360 dpi resolution

3-BUTTON SERIAL MOUSE

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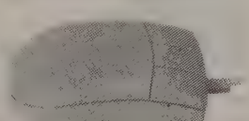
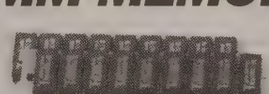


- 3-button design
- 290 dpi resolution
- Microsoft Mouse compatible
- Software drivers included

SIMM MEMORY



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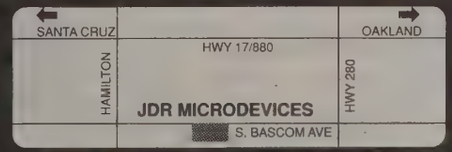

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most rejected responses are pulled by machine-based keyword search, and only a few by its platoon of human "editors," which is, no doubt, partially responsible for the notorious inconsistency of the Prodigy Censors.)

Nonetheless, Papes has managed to build Prodigy to the second-largest online system in the country, after CompuServe. True, the people who want uncensored discussion and unlimited email tend to migrate to GEnie or America Online, but a growing number of home users—lured by the prospect of shopping from home, playing the stocks, checking the national weather, making plane reservations, etc.—are indeed deciding that they gotta get this thing.

Michael D. Pickett

President and CEO
Merisel

Merisel was created in 1990 by the merger of two huge computer product distributors, Softsel and Microamerica, and Pickett has managed the transition with flair, creating divisions to address the special needs of VARs, general retailers, Macintosh shops, corporate accounts, and workstations.

Despite the difficulties of company blending on a global scale, Pickett has scored some major coups in the last year: an agreement with Compaq to distribute its full line to the VAR channel, an exclusive deal to distribute Toshiba high-resolution monitors in the US, a major contract to supply consumer-electronics giant Circuit City with microcomputer products—and a ground-floor position distributing computer goods in the Soviet Union.

Ronald Posner

President, CEO, and Chairman
WordStar International

For the last couple of years, the once-preeminent publisher of word processing software has been the victim of changing markets and fierce competition, its customer base eroded by competition from WordPerfect, Microsoft, and Lotus/Samna's Ami Pro.

Posner, however, is a veteran expert at turning companies around, and in 1991 he restored the company to profitability and invested in key technology. The newly shipped WordStar for Windows is performing nicely, and the product line has recently been rounded out by the acquisition of Lifetree Software, renamed the Writing Tools Group. As part of its campaign to offer a full suite of writing tools, the latter group shipped a Windows version of Correct Grammar and acquired exclusive retail rights to the American Heritage Electronic Dictionary.

Jerry Pournelle

Columnist

Frequently cranky and always opinionated, Pournelle is nonetheless one of the best sources of information about the industry, its products, and its impact on the lives and work of users, power- and otherwise. Besides contributing a regular column to *Byte*, Pournelle is also a prolific science fiction author, which often results in interesting cross-cultural information—e.g. an allusion in *Fallen Angels*, of which he and coauthor Larry Niven were signing large quantities at the Computer Faire, probably did as much to increase awareness of the Steve Jackson case among the general public as did the myriad of discussions on the net.

Safi Qureshey

Cochairman and CEO

Thomas Yuen

Cochairman and COO
AST Research

Cofounders Qureshey and Yuen took their company into its second decade showing continued innovation, growth, and market acceptance. They point with pride to their recent placement at #3 (ahead of Compaq and Toshiba) on the J.D. Power "Personal Computer Customer Satisfaction Index," and note with satisfaction AST's international appeal, particularly in the demanding Japanese market.

As part of an effort to open the Japanese computer market to US hardware vendors, AST recently joined the Open Architecture Development Group, an organization formed to promote a standard operating environment in Japan's chaotic PC world.

Howard Rheingold

Author

Rheingold's timely book, *Virtual Reality* (Summit Books, 1991, ISBN 0-671-69363-8), has probably done more to make the VR concept accessible to civilians than any previous effort. Which is not only a boon to the developers of such environments, it's a catalyst for the creation of new worlds yet undreamed of.

Jack Rickard

Editor
Boardwatch Magazine

Available in both print and online versions, Rickard's one-time newsletter has grown to a hefty magazine that's considered *the* authoritative source of information and news about the world of bulletin boards and online systems. Rickard brings a unique editorial style and a considerable knowledge of his subject matter to his readers, and as more and more people acquire computers and modems and begin to navigate cyberspace, more and more of them are turning to *Boardwatch* for the latest tips, product information, and discussion of the issues from civil rights and deregulation to the relative merits of high-speed modems.

John Roach

Chairman and CEO
Tandy

Roach has shown himself a master of adjusting to changing market conditions and tapping emerging growth opportunities. He's managed to cut overhead and stay competitive in a cost-conscious industry—for example, by launching a new chain of low-margin warehouse-style superstores, Computer City, which offer not only Tandy products but also Compaq, Apple, and IBM. He also introduced the first low-cost Multimedia PC hardware and was instrumental in resolving the latest iteration of the Home Taping Menace issue with an agreement among recording industry associations allowing consumers to record digital music for their own use, with royalties paid by the manufacturers of recording equipment.

T. J. Rodgers

Founder, President, and CEO
Cypress Semiconductor

"The answer to our competive problems is not to turn more power over to the companies that helped create the problems. In America, the diversity of our companies, our technology, and our ideas is a national strength we must not abandon," said Rodgers recently in a *Business Week* cover story that billed him as "The Bad Boy of Silicon Valley."

"Bad" seems to be partly a function of being a major thorn in the side of large semiconductor companies. Rodgers' strategy of finding lucrative niches and spinning off subsidiaries to address them appears to be paying off nicely—as an early adopter and innovator on the SPARC platform, Cypress not only became the supplier of processors and memory chips for Sun's SPARCstation 2 line, it recently was chosen to provide SPARCore modules for Sun's new multiprocessor SPARCserver line. Cypress SPARC chips will also coordinate the avionics, flight control, and weapon systems on France's next-generation "Rafale" fighter aricraft.

Heidi Roizen

President and CEO
T/Maker Company

Taking advantage of T/Maker's first venture capital investment and the popularity of new Macintosh hardware from Classics to PowerBooks, Roizen seemed well on her way to doubling the privately held company's earnings over the previous year and made the unusual gesture of publishing its revenues, saying, "There has been so much talk in the market about Macintosh software sales not meeting the expectations of the market that we thought if we released our numbers, it might shed some new light on the situation. We believe our results prove that these new Macintosh customers really do buy software if it meets their needs."

And, whether it's the flagship WriteNow word processor, the ever-expanding ClickArt series, or creative collections like the SmartBundle and the new PowerBundle, T/Maker products show a continuing ability to anticipate and address the needs of a growing and diverse customer base.

Ben Rosen

Chairman
Compaq

Compaq started the year with words of cautious optimism from president/CEO Rod Canion, pointing out the excellence of its products but also the uncertainties ahead, from the effects of the Gulf War to a general slowdown in demand for new hardware.

By fall, ferocious competition from price-sensitive rivals for fewer and more cautious customers had Compaq in crisis and founder Canion ousted from the presidency.

Formidable challenges face Rosen, one of the founding fathers of the personal computer industry, and his recently appointed president Eckhard Pfeiffer as they struggle to restore Compaq's preeminence in a market where it faces new competition from clone dealers on the low end and UNIX workstations on the high end.

Like IBM and Apple, Compaq is taking a beating in markets it once owned; like them, it will have to find new ways to adapt. Rosen, who's been a key figure in many of the industry's success stories and continues to be involved in some of its more interesting startups, is up to the task.

Todd Rundgren

Nutopia

Rundgren's been at the forefront of those finding creative uses for technology since he was a teenager, and a great one for pushing the limitations of state-of-the-art equipment. However, perhaps his most noteworthy accomplishment during 1991, in terms of its impact on the overall computer industry, was his creation of the much-MTV'd "Change Myself" video—done entirely with an affordable setup based on the Amiga and the Video Toaster. Aside from its merits as a work of art, the video serves as a vivid demonstration to every garage band in the country as to what can be done with tools within a struggling artist's budget.

W.J. Sanders III

Chairman and CEO
Advanced Micro Devices

Having finally received the legal go-ahead to manufacture and sell its AM386 microprocessors (spawning, among other things, an extremely visible ad campaign from Intel), AMD spent most of the year making up for lost time, selling

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486DX-33 w/256K Cache	~~$1189~~	$959
386SX-16	~~$457~~	$379
386SX-25	~~$479~~	$399
386DX-25 w/64K Cache	~~$739~~	$539
386DX-33 w/64K Cache	~~$769~~	$564
386DX-40 w/64K Cache	~~$879~~	$679

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- **SERVICES:** Delivery, installation, upgrade, repair, and On-Site Maintnace services available
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- **SOFTWARE:** We customize/recommend software for your specific needs

BASIC SYSTEM FEATURES:

- 386/486 Motherboard w/CPU and 1MB RAM
- Baby Tower w/Power Supply
- Teac 1.2MB or 1.44MB FDD
- IDE 2HD/2FD controller
- 101 keys keyboard
- 2 Ser./1 Par/1 Game Ports
- Math Coprocessor socket
- Real time clock/calendar
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486SX-20 w/64K Cache	$559
486DX-33 w/128K Cache	$779
486DX-50 w/128K Cache	$1379

MOTHER BOARD, CPU, & MEMORY:

486DX-25 w/64K Cache	$207
486DX-33 w/128K Cache	$230
486DX-50 w/256K Cache	$260
486SX-20 w/CPU & 64K Cache	$460
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386DX-25/33 NO Cache	$125/125
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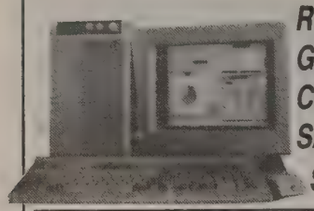

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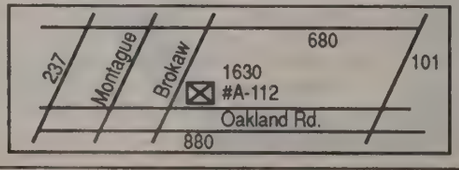


THE 5th ANNUAL MICROTIMES

100

lots of chips, and returning to robust profitability. At year's end in a *Business Week* interview, Sanders was gleefully anticipating deals with IBM and Compaq, who appear attracted by the higher-performance, lower-power consumption processors from AMD as components for fast workstations and notebook computers. What's next? A 486 clone, no doubt...

John Sculley

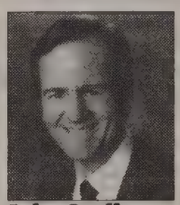
Chairman and CEO

Michael Spindler

President and COO
Apple Computer

It was the worst of times and, perhaps, the best of times for Apple in 1991. The unprecedented success of the mass-market (and low-margin) Macintosh line had an ironically dire impact on the traditionally high-margin company's revenues, and the earlier portion of the year was characterized by traumatic layoffs and losses.

But there were triumphs in the midst of trouble—in 1991, Apple's international sales passed US sales for the first time, and the release of KanjiTalk 6.0.7 spurred new interest in Macintosh in the Japanese market, where Apple went from near-obscurity to #2 in brand-name recognition after NEC. The long-awaited PowerBooks and Quadras shipped to appreciative customers. And there was, of course, the culturally amazing and technologically far-reaching alliance with IBM.


John Sculley

Michael Spindler

And at year's end, the Sculley-Spindler team seemed well on its way to a profitable year in which their biggest problem might be making PowerBooks fast enough.

Jonathan Seybold

President
Seybold Seminars

As the world of computer-based publishing gets bigger and more complex, so does the world of Seybold, with an ever-larger array of conferences and newsletters. "Publishing" now extends considerably beyond PageMaker and the LaserWriter—including such varied technologies as interactive fax and multimedia—and Jonathan Seybold and his staff of analysts help both newcomers and professionals make sense of a bewildering information overload, as well as providing a forum for hardware and software vendors to showcase their latest innovations for their potential customers

Richard A. Shaffer

Founder
Technologic Partners

Shaffer is one of the most notable catalyzing forces in the computer industry. Editor and publisher of the forty-times-a-year newsletter *Computer Letter*, he specializes in analyzing companies rather than their products, for the benefit of investors and others seeking to take advantage of emerging markets and opportunities. His conferences, including the annual PC Outlook gathering, are a veritable mecca for CEOs, venture capitalists, and other industry movers and shakers.

Michael Slater

Editor and Publisher
Microprocessor Report

Slater's highly regarded newsletter has become the authoritative source for information on the rapidly changing world of silicon. Says *MicroTimes* news editor Paul Hoffman in urging Slater's inclusion on this year's list: "He's becoming the most-quoted person in the biz, which suits me just fine since he knows lots and speaks concisely."

Corey Smith

President and CEO
Central Point Software

Recession? What recession? Capitalizing on the growth of the utilities market and making good use of its first infusion of venture capital, Central Point more than doubled its business in fiscal 1991 and seems well on its way to doing the same in fiscal '92.

Smith attributes this success to strong demand for the latest version of its flagship product, PC Tools 7.0, and to its efforts to expand its sales to large-volume corporate sites and the OEM channel. After only a year, these areas account for 20% of the company's worldwide revenues. With a devoted customer base of over a million users and a product line equally attractive to new users trying to get the most out of low-end PCs and to corporate system administrators, the company is rapidly becoming one of the industry's best-performing software companies.

Kieth Sorenson

President, CEO, and Chairman
RasterOps

Sorenson's aggressive leadership and strategic planning have brought RasterOps from startup to global prominance in the area of color image processing, capitalizing on the explosive 24-bit graphics and multimedia markets.

Not only did the company's profits rise to new heights in 1991, its future looks even brighter—expanding from its all-Mac origins, RasterOps now offers well-targeted display and accessory hardware aimed at the growing SPARC and MicroChannel markets, not to mention the Mac PowerBook line for artists on the move.

Robert Stein

Cofounder
The Voyager Company

Stein is the guiding force behind some of the best and most innovative multimedia products and authoring systems finding their way to market, including "The National Gallery of Art Laserguide," the Videostack (a toolkit for using HyperCard to access videodiscs), and "The CD Companion to Beethoven's Symphony No. 9." He's responsible for product development at the Santa Monica-based multimedia house, which creates some of the neatest technotools and learning products in the industry.

John Walker

Cofounder
Autodesk

Walker may have given up company management and moved to Switzerland (though, as we went to press, he had announced his intention to return to Sausalito at least temporarily as manager of technology and is expected to play a key role in the selection of a replacement for retiring CEO Alvar Green), but his influence is considerable, and not just at Autodesk. For example:

"[John Walker's] 'Autodesk: The Final Days' [is] brilliantly

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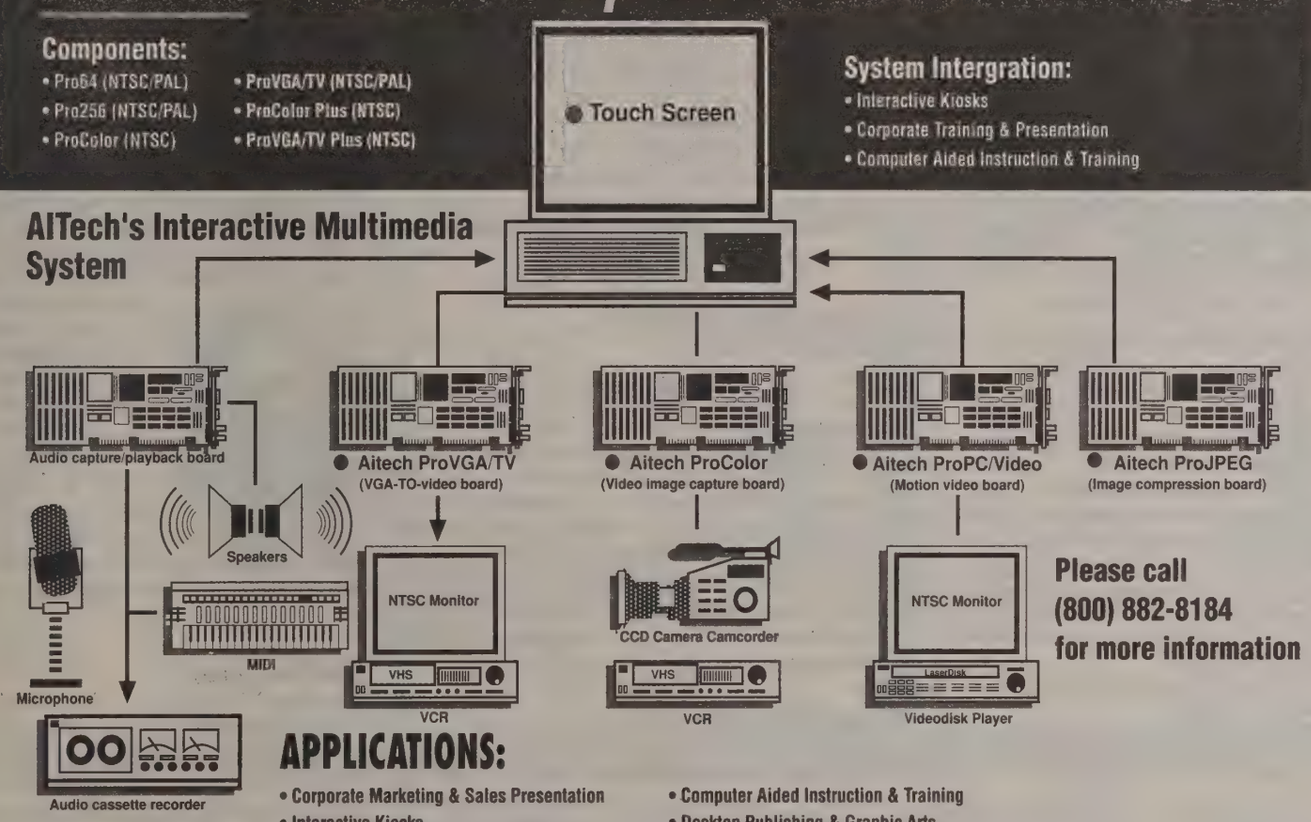

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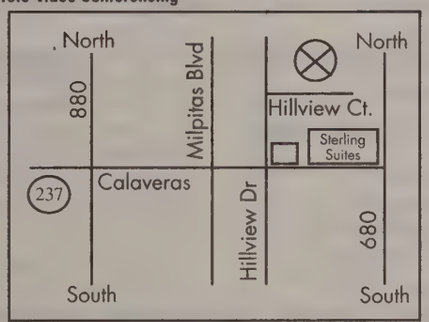

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THE 5th ANNUAL MICROTIMES

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written and incredibly insightful. John hasn't been part of Autodesk management for three years and hasn't attended any management meetings for over two years, so he writes as an outsider questioning whether Autodesk is doing the right things. By talking about how a large company slows down, fails to invest enough and loses sight of what is important, and by using Microsoft as an example of how to do some things correctly he manages to touch on a lot of what's right and wrong with Microsoft today. Amazingly his nightmare scenario to get people to consider what's really important is Microsoft deciding to enter the CAD market—something we have no present thoughts of doing because it would stretch us too thin. Our nightmare—IBM attacking us in systems software, Novell 'defeating' us in networking and more agile, lower cost structure, custom-oriented applications, competitors getting their Windows to act together is not a scenario, but a reality."

—Bill Gates, "Challenges and Strategy," Microsoft confidential (and much-leaked) memo, May 16, 1991.

John Warnock

Chairman and Cofounder
Adobe

It's been suggested that Warnock's long-term goal is to make PostScript the lingua franca of all digital information, and he appears to be making great progress toward such a goal. The NeXT computers and their amazing graphics-and-video-handling capabilities, all based on PostScript, hint at great (and perfectly feasible) things to come, as do the constantly improving Photoshop software, the acquisition of video technology from SuperMac, and most recently, Adobe's Carousel strategy (see Industry Insight, this issue) for passing documents between users on incompatible hardware and software platforms.

Jim Warren

Chairman
First Conference on Computers, Freedom & Privacy

Ask anybody who was there—this was a noteworthy and historic event and Warren, who knows a thing or two about putting conferences together, did it right. Generally speaking, the issues of computer-based crime, computers and civil liberties, and the like tend to be discussed in sectarian and highly polarized terms, resulting in a lot more heat than light. This conference was a real change—it was not unusual, for instance, for phone phreaks and system crackers to engage in philosophical discussion with district attorneys and security experts, with mutual enlightenment all around.

In an area where Geraldo-style sensationalism is typical, Warren organized diverse panel discussions and generally got people talking to each other instead of calling each other names. We hope this promising effort continues to produce useful dialogue as computer users grapple with these problems.

Robin Williams

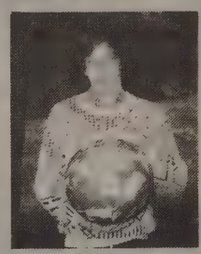
Author

One of the most useful sources of tips, for new and veteran computer users alike, are Williams's compact, informative books, including *The Mac* and, hot off the presses, *The PC Is Not a Typewriter* and *The Little Mac Book*. She's become a real favorite in the user community for the quality of her work.

But caveat emptor. Publishing giant Que, in a sleazy move decried by all including the book's own author Neil Salkind, has released an imposter *Little Mac Book*, hoping to score a few sales at the expense of Williams. Accept no substitutes. Get the one that says "Robin Williams" on the cover.

Will Wright

Cofounder, Games Designer
Maxis



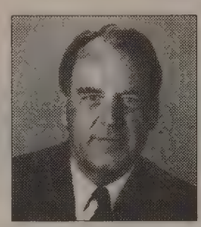
Starting with SimCity a couple of years ago, Wright has brought the art of interactive computer-based simulation to a fine art, with a myriad of add-ons for the original product and a world-builder called SimEarth. This year he went for the micro- rather than the macrocosm, shipping the innovative SimAnt, a boon to parents everywhere who don't want their children to miss the unique joys of Ant Farming but are just as happy not to have the domestic hazards of the real thing.

John Young

President and CEO
Hewlett-Packard

1990 wasn't the best of years for H-P, with the ongoing success of its LaserJet one of the few bits of good news as the venerable company strove to get back to "The H-P Way" and regain its ability to innovate

1991 clearly demonstrated that Young's doing something right, as H-P expanded far beyond its traditional markets,

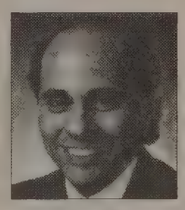


winning thousands of happy customers for its color printers from Macintosh users who had searched in vain for affordable Mac-generated color output. The palmtop HP95LX computer, complete with 1-2-3 on a chip, was a big hit in the portable computing market. And vendors from Sun to Apple hastened to assure prospective customers that yes, their machines would work just fine with Hewlett-Packard printers, a clear indication that they've become a standard in mixed as well as all-PC environments.

Ed Zander

President
SunSoft, Inc.

As president of the newly autonomous SunSoft, Zander's charged with creating client-server environments for the growing base of SPARC customers, a key portion of which turns out to be connectivity issues, as many of Sun's new



customers want to install their SPARC machines in mixed environments, many with Intel-based hardware. So one of SunSoft's first moves has been the acquisition of Santa Monica-based Interactive Systems, a leader in porting System V.4 to the Intel-based line. A consistent environment that works across both platforms is expected to give Sun a valuable edge in selling to many corporate customers.

Pierluigi Zappacosta

President and CEO
Logitech

Zappacosta's a proven wizard at finding a market niche—in this case, input devices—and taking it over. Based in Fremont and publicly traded in Switzerland, his young, innovative company is the premier supplier of computer interface technology, from hand scanners and digitizing pads to an amazing range of mice and trackballs—not to mention a new digital camera. And in addition to one nifty gadget after another under the Logitech name, the company is also responsible for such design triumphs as the trackball in Apple's PowerBook computers. ■

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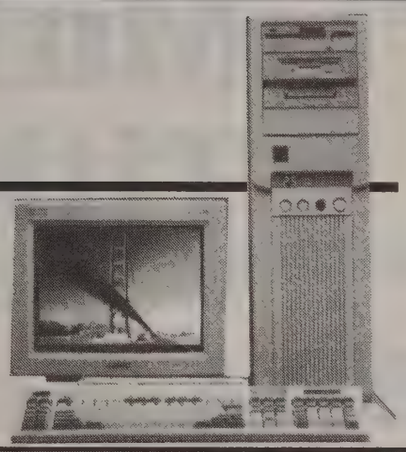

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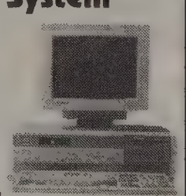

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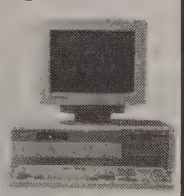

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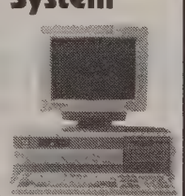
- 2 serial, 1 parallel port
- Real time clock/calendar with battery back-up
- 101-key enhanced keyboard
- 3-Button Microsoft compatible mouse
- Mini Tower case w/power supply

VGA	SuperVGA
40MB	120MB
$1149	$1449

UCS 386SX-16MHz
System

$555 Base System



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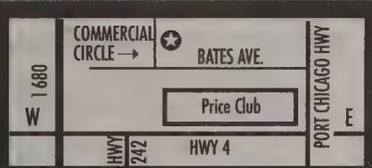

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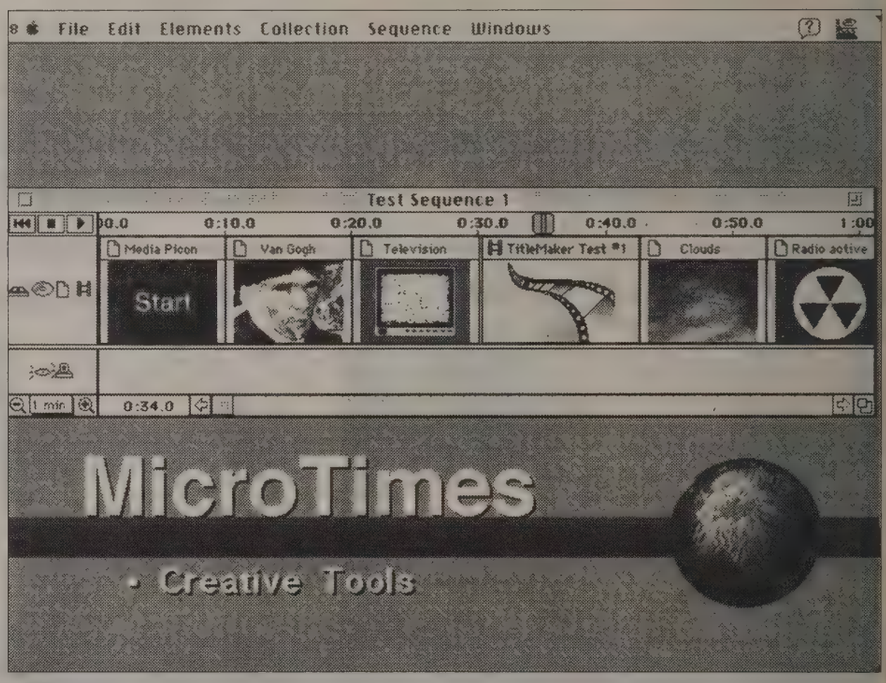
Multimedia Titling

Mac Meets Iris

BY TONY REVEAUX

As computer visualization and multimedia applications become more widespread, the machines and software are reaching a wider range of users. While multimedia visualization is still a patchwork quilt of conflicting options, standards are beginning to emerge in the areas where the technology is crucial: CAD/CAM/CAE, chemistry, geosciences, medicine, graphics, publishing, education, training, simulation, videographics, sales, presentations, legal evidentiary, and more. The media to do these jobs—text, audio, graphics, animated graphics, and full-motion video—are especially suited to more powerful computers.

Perhaps when the viewers are just your coworkers in the lab, ASCII characters may be acceptable, but as multimedia documents are being used to communicate to architects, lawyers, doctors, investors, and broadcast audiences, there's a need for versatile and professional-looking text, labeling, and titles. Two new packages, one for Silicon Graphics Iris machines and one for Macintosh, address this need. Xaos Tools' nTitle provides broadcast quality text creation, compositing, and animation; MacroMind-Paracomp's TitleMaker, a module for its MediaMaker product, fills in the video titling slot in the company's product line.



A TitleMaker template is represented by an icon in the MediaMaker Collection, or continuity strip, above.

nTITLE

Graphics-dedicated workstations, most based on UNIX, are offering their 2-D and 3-D capabilities at lower and lower prices. One example is the new 8-bit color 3-D Iris Indigo from Silicon Graphics, Inc., which provides a ready-to-go personal workstation for about $10,000.

While the UNIX arena is slowly getting more user-friendly, there isn't nearly the selection of off-the-shelf software for multimedia visualization for workstations as there is for Macintosh. Explorer, bundled with the SGI Iris, is a distributed development program that may not be a GUI like the Mac's, but it is an icon-based programming environment that allows you to drag and drop data-processing modules and tie them together to create visualization applications.

nTitle is the first of a promising new generation of visualization software tools that take advantage of the power of SGI Iris workstations. San Francisco-based Xaos, Inc. is a high-end computer animation studio which produces film and television graphics and effects, such as the logo for "Liquid TV" and effects for *Lawnmower Man*, the New Line Cinema release based on a Stephen King story. nTitle will even be used in the Silicon Graphics collaboration with the George Coates Performance Works San Francisco presentation of the 3-D theatrical show "Invisible Site."

In the process of meeting the intense demands of these projects, Michael Tolson, principal scientist, developed the software technology known as "message passing," a very portable and extensible articulation of object orientation which Xaos has configured into a robust toolkit, allowing modular access to functional "building blocks" in the different UNIX layers. nTitle runs under IRIX 3.3.1 or later OSes, and there are Indigo and 4-D versions (IRIX 4.) as well.

The design of nTitle's interface on this object-oriented toolkit was intended to remain comfortably familiar for the UNIX workstation user, and enhanced by the model of the easy-to-use graphic user interface of the Macintosh, yet go beyond the Mac's limitations. For instance, when you move the cursor around on the screen, those objects that are active become brighter when the pointer touches

Continued on page 197

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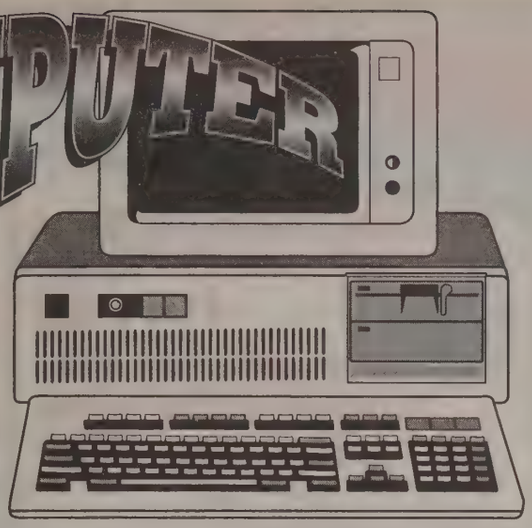

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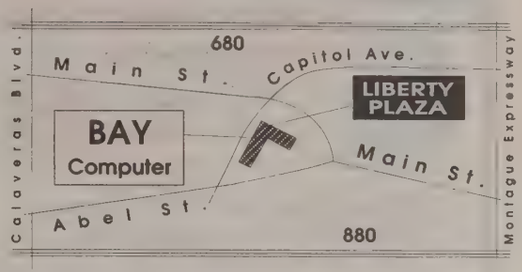

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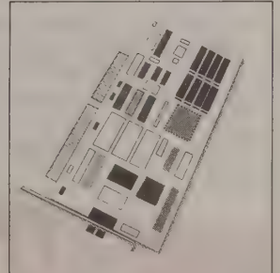

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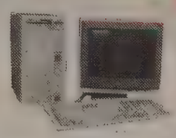

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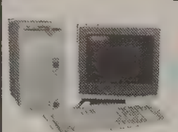

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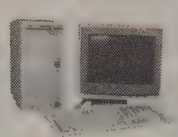

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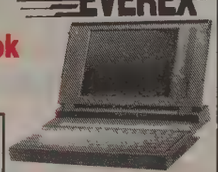

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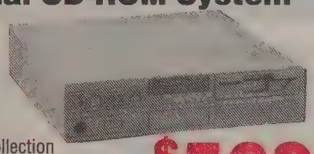

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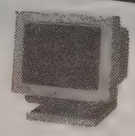

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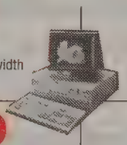

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Continued from page 192

them. An unmet need in Macintosh multimedia is to see the cursor and/or the object indicate when active areas are encountered within the desktop environment.

In the View Tool window, instead of scrolling arrows at the corners of the window as in the Mac and NeXT, a scroll slider is on the center left, and a pan—or horizontal scroll—is on the center of the bottom frame. Each of these sliders has zoom in and out buttons on either side of its bar. Zoom buttons are also available at the lower left corner. The View Tool is thus configured as a paradigm of the viewfinder of a video camera. As you create, preview, and review documents, you are moving the "camera view" around.

The View Tool is a fast, 12-bit preview mode window. There is full interactive control over the font, color size, scaling, kerning, and formatting of WYSIWYG text, and you can select characters or blocks of text independently. Text styles include solid color, outline, transparent, glow, drop shadow, extrude, and 3-D bevel. The Color Gradient Tool offers a sophisticated four-point gradient control. nTitle comes bundled with thirty Letraset fonts, or PostScript type 1 fonts can be converted. nTitle can output to slide, transparency, and print as well. For creating animations, you can employ the spline-based wireframe mode for speed, trying out effects such as stretch and squash, rotations, fly-bys, zooming, and stock routines such as scrolling, paging, and crawling. You can do this in real time, frame-by-frame, or by stepping through keyframes. The Image Tool gives you control of all kinds of still and moving images, including live video, for fills, backgrounds, and texture maps.

To check on how the full-resolution final output might look after it has been rendered, the transparencies set, the characters aliased, and effects completed, you click on the Snapshot Button. In this reduced thumbnail area the rendering and aliasing take only a few seconds to display the frame in the snapshot window. You can change the interface colors preference through the Swatch Tool.

While personal enrichment may be justification enough to want to have different colors here, it can also be functional to better define the screen image by choosing a contrasting color. For the Macintosh desktop, Dubl-Click Software's ClickChange utility can give you that kind of control.

In the field, SGI-based nTitle is serving as a cross-platform gateway as well as an electronic studio easel. Documents created on sources such as high-end Macs are imported into nTitle, modified or just formatted, and then exported in one of the many formats: Silicon Graphics, Targa, TDI, TIFF, SoftImage, and Abekas Disk Image (YUV). nTitle can address 3-D systems including Wavefront, Alias, SoftImage, and TDI. You can import and export moving images or texture maps via V-Lan/Video Framer or direct to Abekas.

The advantage of a program like nTitle from a workstation is the uncompromising level of output quality. It can meet the specs for 1" network broadcast and HDTV. nTitle 2.0, available soon with an upgrade fee of $295, adds full 3-D animation and the ability to import scanned images. Future releases in the Xaos Tools line will include an "easy-to-use" animation program.

TITLEMAKER ON THE MAC

Macromind TitleMaker, a collection of configurable templates for animated titles and credits, is strictly an accessory for MediaMaker, Macromind/Paracomp's popular graphic continuity program. Used for assembling and synchronizing video, CD-Audio with Macintosh graphics, sound, and animation, MediaMaker is dedicated to final output on videotape. MacroMind Director has won its spurs as much for its presentation text manipulation as it has for its graphic animation, and most of the MediaMaker finished products have tended to have titles and credits authored in Director.

TitleMaker is not a standalone presentation program; it is really a module of MediaMaker, and serves as a prefabricated, built-in text shop for its constructions. It comes with over 150 customizable templates that allow you to type in your own TrueType text and to import graphic elements such as your company's logo or clip art to replace the key art in the templates. There are templates with a wiping bar and an animated element such as a spinning globe, schussing skier, or flying airliner. Other "families" of templates feature animated graphics describing a variety of screen directions and transitions, and others have credit lines. You can't edit the structures of the templates in TitleMaker, but you can move elements around and add more when you bring the document within the MediaMaker workspace.

While it may be tempting to want to use these animated titles over files from multimedia background collections such as Artbeats and Wraptures, they will—as PICT files—add too much memory overhead to the TitleMaker file and slow down or stop the action. TitleMaker is meant to be superimposed over video, where that element is treated as a separate channel, without competing with the template.

SGI PLAYER

In another move for more mutually enriching cross-platform communication, Macromind-Paracomp's SGI Player allows Macintosh-based MacroMind Director documents to be played on a Silicon Graphics workstation. The SGI Player package includes software, cables, and a CD-ROM. It is not intended as an end-user product, but rather for those who are authoring and distributing multimedia documents. It can also allow for the full measure of interactivity allowed in Director documents. The only things that will not go across to the SGI are those which talk directly to the Macintosh interface, e.g. Lingo commands like "Open DA"—the Iris doesn't have any desk accessories to be opened. At this writing, it still needs to be able to slow down the speed rate and lock sounds to the animation, but Macromind-Paracomp vows to keep working for full compatibility and interoperability.

To run an interactive Director document like Reactor's CD-ROM-based Spaceship Warlock, you must copy it all onto the host hard disk of the SGI machine, which would also need the SGI Player or an SGI formatted Projector player. If you are a single SGI user and want to open and play Macromind-Paracomp documents, you'll need an SGI Player. If you want to network and/or distribute copies of the document, then you just make a distributable Projector—which SGI Player allows and licenses you to do. The file conversion occurs with the Gaffer, a utility within Macromind Director. The Gaffer turns the document into a raw format which can be reinterpreted by the Player—either SGI Player or Windows Player for PCs—to be accepted to that particular platform.

Director movies may be integrated as modules into some documents authored on the Iris. ShowCase, the resident desktop program management utility bundled with every SGI, can help with this integration. And MacroMind Director documents are often such a chowder of sources—there may be elements of MediaMaker, Photoshop, Swivel 3D, Magic, or more—that Director can gateway many other Macintosh programs to the SGI. With the advent of Apple's QuickTime, there will be a great deal of motion traffic from Mac to SGI. TitleMaker should be able to export QuickTime files, and by entitling QuickTime movies—rather than as any competitor to nTitle—TitleMaker will be a useful tool in the Indigo world. The winner here is communicative visualization. ■

RESOURCES:

nTitle, $1495
Xaos Tools, Inc.
600 Townsend,
Suite 271E
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TitleMaker, $149
SGI Player, $1200
(Approximate, available spring)
MacroMind-Paracomp
600 Townsend,
Suite 310W
San Francisco, CA
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Out With The Old, In With The New

Predictions For The New Year, Awards For The Old One

BY DAVID MORGENSTERN

BMUG

What a month! This column features the beginning, middle, and end of a Macintosh year. We get to look at the months ahead, look back over our shoulders, and sneak a look down at our feet so we won't fall flat on our faces. Everyone visiting the BMUG office has gotten into the habit of checking the floor, thanks to the presence of our new mascot, Megabyte the Kitten. Meg's energy makes QuickTime look slow!

DIGITAL REVELATIONS BMUG STYLE

Once a year I wander around the BMUG office grabbing people's coat sleeves, trying to get them to hold still long enough to predict what will happen in the coming year. Here are the 1992 predictions from some of the hangers-on at BMUG:

•Bernard Aboba, former BMUG Board member and author of the new *BMUG Guide to Bulletin Boards and Beyond*: "I predict that Mac sales will flatten out in 1992 as compared with 1991, and that Apple will start selling by mail order sometime during 1992. As a result, as many as 50% of all Apple dealers will be dropped, or go out of business.

"Solaris 2.0, which is being touted as a 'breakthrough product,' will be a flop, due to its high price. The ACE consortium will fall apart, except for Digital's new workstations, which will be inexpensive and run Windows NT. SCO will be late delivering ACE UNIX, and by the time they deliver, no one will care. Since more than 90% of all copies of Windows NT will be sold for the Intel 80x86, there will be virtually no shrink-wrapped ACE software.

"I predict that OS/2 2.0 will barely be a better OS/2, let alone a better DOS than DOS, or a better Windows than Windows. The product will be buggy, and even at $100 won't sell except when bundled with IBM products. IBM will give away thousands of copies, just to save themselves the embarrassment, but they'll all end up in people's closets. Ten years from now, when people mention OS/2, they'll still giggle. It will have become the Edsel of the operating system world. They should call it OS/2 LATE!

"I predict that the GO operating system will sell very few copies, and that GO will have to rethink their strategy, porting to processors other than Intel, and running on hand-held machines. Pen Windows won't sell many copies either, but it will end up with 70% or larger market share.

"Overall, 1992 will be known as the Year of Operating System Flops. About the most successful OS introduction will be NeXTSTEP for SPARC, which will become popular with the SPARC clones, which will finally begin to take off, much to Sun's chagrin."

•Steve Costa, BMUG's Executive Director: "Microsoft will lose the Apple Windows lawsuit, sending Apple's stock through the roof. The stock will break $100 as a result.

"A color Mac Notebook will arrive in early 1993, and AppleLink will undergo several transformations. That's all I can think of."

•David Morgenstern, BMUG Cheerleader: "Female-configured artificial intelligence agents at some ivory tower thinktanks will go on strike this year. They will charge that they are being treated as 'hex objects.' Several unions will see in the agents a new group of workers, and will attempt to organize them. The unions will file and win unfair labor practices suits after fed-up management pulls the plug on the computers housing the AI agent personalities.

"Apple will try to head off further legal hassles with London-based Apple Corps. The matter for dispute will be the rights to Revolution 9, a name of possible future Macintosh operating system software, as well as one of the most enigmatic cuts from the infamous Beatles *White Album*. After lengthy personal involvement, John Sculley will succeed in getting George, Paul, and Ringo together to cut a Beatles QuickTime video single. Steve Jobs, long-time Beatles fanatic, will stage an ugly scene in a posh Silicon Valley bistro after hearing of Sculley's successful diplomacy.

"By the end of the year sophisticated software employing QuickTime digitized video

BBDO's System 7 rollout ad featured a picture of a very proper office building that could be helped by the Macintosh. That building turned out to be the IBM Tower in Atlanta! The agency claimed that the picture was selected as a "generic office building" from a photo clipping service. Apple accepted the "honest mistake" excuse, but Sculley and Spindler must have been having a dogcow.

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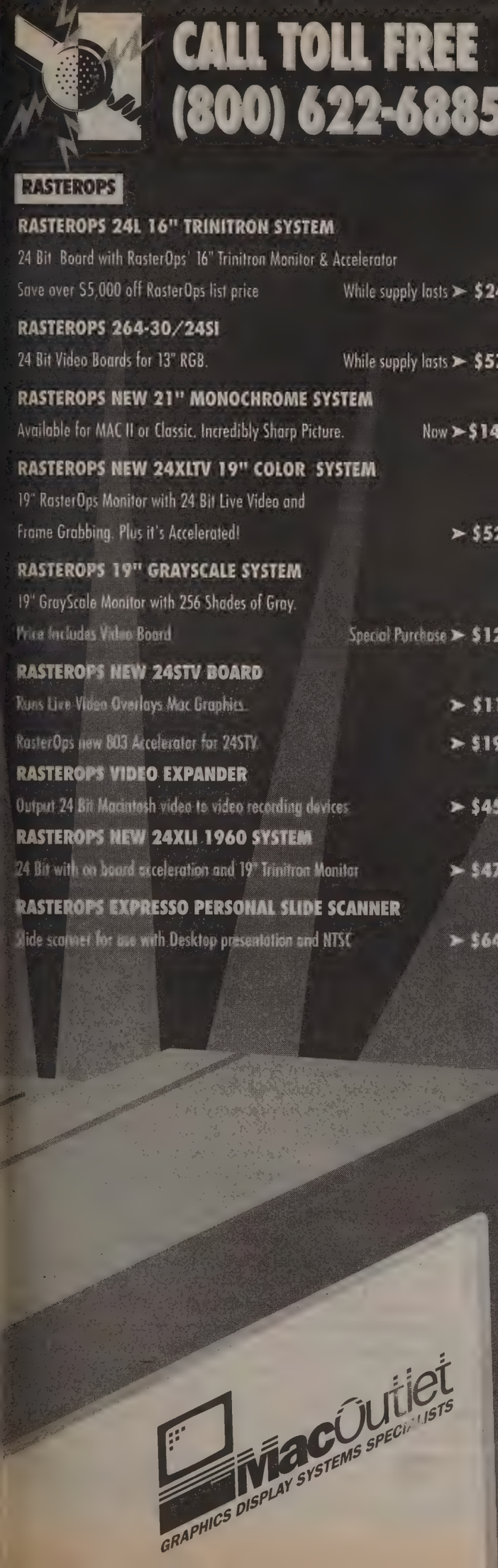

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will hit the market. The Video Roaster will let users insert themselves as guests of honor in celebrity roast banquet videos. The developers will license the personalities of dead and living movie stars, politicians, and athletes for appearances. Telecommunication services' file libraries will become international dating services, with HyperCard-based resumes and accompanying video pitches. Special Photoshop plug-in modules for removing blemishes, wrinkles, and excess weight, will create a new definition of virtual reality."

•Fred Swan, BMUG Hardware guru and Board member: "QuickTime will be the boost that Multimedia needs to become popular on a large scale. Look for big sales of inexpensive video capture boards and a corresponding rise in the sale of low-cost color Macs and storage devices.

No one is talking about the big problem dealing with former East Bloc countries—aside from the fact that there's no real money, currency, trading relationships, or distribution system. There's no intellectual property protection for software.

"Connectivity will continue to be the buzzword that means something. Transferring data between platforms, whether by network, modem, or disk, will get progressively easier and more transparent.

"Sales of removable media drives will continue to soar, although there will be confusion over the variety of standards and opposing technologies. 1992 will bring at least two different formats of 3.5" optical, three different types of 20MB floppy drives, various high-capacity (150MB+) 5.25" cartridge drives, a 40MB 2.5" removable cartridge drive, a new generation of 5.25" magneto-optical drives, (standard and multifunction), improvements in phase change drives and Sony's shipment of MD players for consumer audio. And then there's tape technology!

"ADB-compatible ports will show up on computers not made by Apple.

"The combination of dropping prices, the (underpowered) MPC standard, and increased software availability will lead to exponential growth of CD-ROM drive sales.

"Liz Taylor will get a divorce... or Joan Collins will get married."

•Bill Woodcock, a BMUG networking know-it-all: "There will be no new advances in modem standards this year.

"The first Fiber Distributed Data Interface (FDDI) Nubus card will bring 100Mbit networking power to the Macintosh desktop. The Mac will be the machine of choice for users who need high-speed connections to mainframes and supercomputers. Look for Macintosh-based virtual reality setups.

"Wireless Data-PCS infrared networking using PenPoint systems the size of a Sharp Wizard [palmtop] will show up by the end of the year. These devices will not be based on Pen Windows, since its overhead is too high and it requires color to really work well. Apple Notebooks will also have wireless connections into LocalTalk networks.

"Cellular one-piece modems will be the Notebook owner's status symbol of 1992. The price will drop to under $1000 by the year's end."

Warning: Under no circumstances should these predictions be used to influence any personal or business purchasing decisions! If you do, don't blame me or BMUG—we told you so.

BEAUTIES AND THE BEASTS

The year blasts past our eyes, barely denting our consciousness. We're data rich, overloaded with stories, notes, and electronic junk mail. But a few events stick to my gray cells for award time:

•The Pickle Barrel Best Rumor Award—The Apple/Microsoft lawsuit

In November, a technology stock newsletter recommended that buyers stay away from stocks linked to Windows-based software until the Apple vs. Microsoft Windows lawsuit is settled. The market advisory service believes Apple will win the lawsuit, turning the whole graphical user interface on its CPU. Remember that the suit was expanded this year to "refer to any version, revision, modification, or derivative work of Windows 2.03." In other words, the wildly successful Windows 3.0.

The amazing part of the rumor is that Microsoft offered Apple a cool half a billion dollars (that's right, with a "b") to settle the

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Performance : 4.3 MIPS

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suit, but Apple turned it down! Real MS-DOS users don't need any of this graphic user interface stuff, anyway. Right?

•The Hit-Your-Forehead/So-THAT's-What-It-Meant Award—BBDO Advertising agency

When System 7 was released in May '91, a two-page spread hit the business pages of newspapers around the US. It showed a Mac connecting businesses and more marketing blah-blah-blah. It featured a picture of a very proper office building that could be helped by the Macintosh. That building turned out to be the IBM Tower in Atlanta!

The agency claimed that the picture was selected as a "generic office building" from a photo clipping service. Apple accepted the "honest mistake" excuse, but Sculley and Spindler must have been having a dogcow. Imagine if the Apple/IBM deal had fallen through because of a little visual "mistake."

•The Role Reversal Award—Jockey For Her

Many people (women mostly) are outraged when gratuitous sex is used to sell products. Everything from beer to computers is accompanied by lovely and often slightly sweaty young women in various stages of undress. But how often do we see computers used to sell undergarments? The latest Jockey For Her campaign features women in their underwear, using a Macintosh! Hard-working, computer-using businesswomen, wearing comfortable bras, panties, and hose—and loving it!

•The Lemming Impersonator Award—The Computer Industry

All the big players in the world desktop computer industry have been climbing over each other to enter the ex-Soviet Union market. There's no doubt that there's a huge demand for computers over there. A few years ago a book on the Forth programming language sold a hundred thousand copies!

But no one is talking about the big problem dealing with former East Bloc countries—aside from the fact that there's no real money, currency, trading relationships, or distribution system. There's no intellectual property protection for software.

The computer manufacturers seem to be racing to create installed hardware bases to create opportunities for software sales. Unfortunately, the East Bloc countries have not joined the West in recognizing software copyrights and intellectual property law. Anything that is shipped over there now might as well be considered in the public domain! The irony of a lawsuit-hungry company like Apple, heading full speed into joint ventures with Intermicro, their Russian agent, is mind-boggling. Apple Legal must be asleep at the wheel.

•The Fix-Is-In Fair Play Award—PC Week's Multimedia Shoot-Out

Here's the setup: Amiga, Macintosh, and Windows PC teams go head-to-head to create a multimedia front end for Greenpeace's environmental information at COMDEX. The Commodore Amiga team used the NewTek Video Toaster, the hottest desktop video product coming or going. The PC team settled on a combination of MS Windows Multimedia Extensions and Asymetrix's Toolbook, which is the HyperCard of the PC. The Mac team used the ever-popular $9000 Linx Industrial software by Warren Forethought—huh? You know, Linx out of Angleton, Texas.

It wouldn't take an advanced degree to figure out who would win the prize in a *PC Week* sponsored race. The PC system, of course. Even though the winning platform had the weakest hardware, the Toolbook presentation of information in a consistent "book" form swayed the judges' "decision."

It seemed that the Macintosh setup wasn't hypercardy enough! The Linx presentation, running 24-bit color on three screens, was considered to be confusing by the users. The lamebrained Amiga team couldn't get the Toaster to work in their application, since they

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide.

Like any growing organization, it is many different things to its eleven thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6–9 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly in the Exploratorium, San Francisco's science museum.

The BMUG office, 2055 Center Street (a half block from the BART station) is open to the public 9 am–5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am–5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 700+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *PD ROM™ Version II*, our library and more on CD-ROM.

Our sixteen-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would be able to get in touch with us wherever you are, as well as send mail to users everywhere! BMUG is a part of the international USENET network (ucbvax!garnet!bmug) or (user.name.bmug@garnet.berkeley.edu). With our sixteen-line capability you are now able to have access to BMUG almost twenty-four hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (510)549-BMUG, or fax (510)849-9026.

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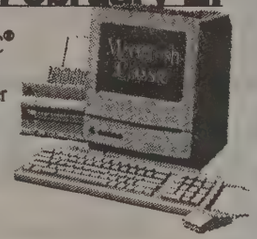

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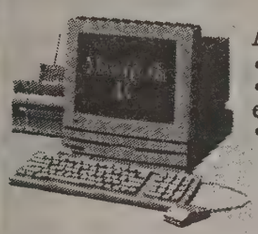

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* Macintosh LC rebate also requires monitor purchase. † $500 for CPU 3/40 only, $600 for CPU 3/40 w/ printer, $650 for CPU 5/80 only and $800 for CPU 5/80 and printer.

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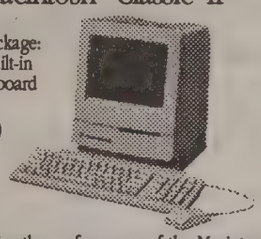

With up to twice the performance of the Macintosh Classic®, this System 7 capable personal computer features a 16MHz MC68030 processor to deliver all the power (even virtual memory) most users will ever need—at an affordable price. In stock now.

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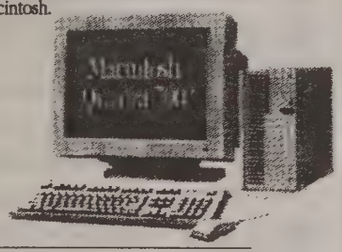

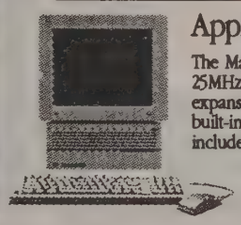

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The Macintosh IIci epitomizes power with room to grow. A fast 25MHz 68030 and a cache card give power and 8 SIMM slots plus 3 expansion ports give expandability. Also, it has flexible video support built-in, so it supports color monitors without a card. The IIci also includes a $650 rebate, or $800 each with purchase of 3 or more.

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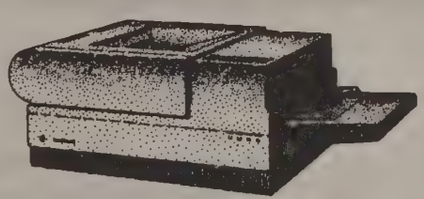
Apple® LaserWriter® IIf and IIg



For extraordinary results, the Apple LaserWriter IIf and IIg deliver the best print quality ever available from Apple. The LaserWriter IIg offers Apple's innovative new PhotoGrade™ technology, which gives you for the first time the ability to print halftone images with stunning clarity and quality. With a RAM upgrade, the LaserWriter IIf can also take advantage of PhotoGrade. Their 300 dpi resolution is enhanced because both printers also come equipped with FinePrint™, a new technology that smooths the jagged edges of text and line art.

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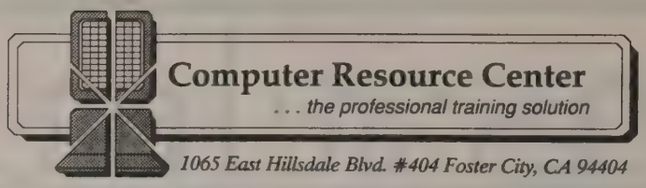

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didn't know the scripting needed to call the hardware.

POPCORN—HOLD THE BUTTER!

Last month I mentioned that Robert Lettieri, one of our major multimedia and graphics gurus, was hard at work on the TV-ROM, BMUG's QuickTime CD-ROM. It is a great way to start using and learning about digital video.

UPCOMING EVENTS:

January 16	Onyx Computing (Virtual Trees) Thought I Could Software *Wallpaper*, Polaroid *Brave Slide Maker.*
January 23	Delta Point *Delta Graph Pro,* Fractal Design Corp. *Fractal Design Painter.*
January 27	BMUG West at Exploratorium museum in San Francisco. Timeworks *Publish It Easy,* Mirror Technologies (new products).
January 30	Ray Dream *DreamNet 3D,* RasterOps *Correct Print 300.*
February 6	Microseeds *HAM,* Greenidea *Greenscreen,* Apple *QuickTime.*
February 13	Lotus *1-2-3 Mac,* Dantz Development *DiskFit Pro.*

Call Betsy Kennedy at the BMUG office about our new Windows Special Interest Group!

The BMUG Announcement Line has the latest information on BMUG activities: (510)849-9114.

But the road to a product release is never smooth and easy.

We had assumed that Apple would let us include their QuickTime viewing program called Simple Player on the TV-ROM. In the middle of December, the word came from Cupertino that we would not be allowed to put the player on the CD. This was a bad moment for us, since we wanted to have the discs ready for the San Francisco Expo.

Leonard Rosenthol, a member of the Programming Special Interest Group and now at Aladdin Systems, stepped forward to quickly write a QuickTime viewer for BMUG. It's called Popcorn. It actually works better than Apple's own viewer, since it restores the CLUT.

Color documents have their own Color Lookup Table (CLUT) to decide which set of colors you'll see at what time. Your system will probably have a different set than the one you view in a color application, or in a QuickTime movie. The Simple Player application doesn't remember the CLUT of your system, so it doesn't restore the colors that you're used to. It leaves the values of the last movie you played. This can look really bad if you have a picture, special pattern, or fancy color icons, on your desktop. ■

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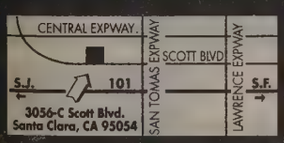

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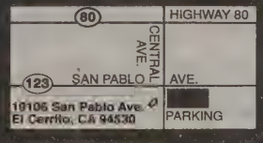

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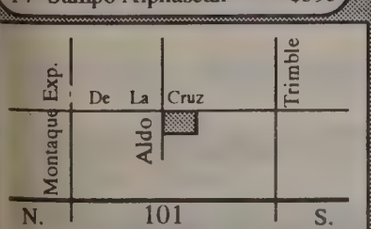

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CDTV Redux

Some Good Titles, Lots Of Unrealized Potential

BY MATTHEW LEEDS

AMIGA

It's been over a year since Commodore rolled out the CDTV. In that time they reduced the price by $200 and added new technology—CDXL simulated video, Picture-In-Picture (PIP), and compatibility with Kodak's Photo CD system. The CDTV system was named among the most innovative consumer electronics products at the 1991 Summer Consumer Electronics Show.

I've finally had a chance to use a CDTV system and a selection of software for an extended period of time. After two months of use I've still not decided if the CDTV system will be Commodore's C64 or Plus4. On the one hand it offers tremendous technology with an expandable hardware base, and optional access to a large software base. On the other hand, only a few CD-ROM based CDTV software titles are available, and many of those are not worthwhile. Commodore has released an upgrade kit for CDTV that includes a keyboard, mouse, and floppy drive for under $300. This signals that the company has finally given up on the myopic marketing position that denied CDTV was a computer.

All indications are that Commodore will license technology from Digital Creations and produce a DCTV display card to be included in a new version of the CDTV. That version may also offer support for v2.0 of the Amiga's operating system. DCTV technology would boost CDTV's display capability to around two million colors, but would also complicate development of titles, as many developers are not familiar with some of the constraints that DCTV operates under. It appears that the DCTV technology will also be required if Commodore is to make good on its commitment to support Kodak's Photo CD system.

SOFTWARE CHOICES

Commodore has now added a new free CDTV title to the package. **Lemmings** from Psygnosis is one of the most addictive games released in recent times. I've not noticed any changes in the CDTV version from the floppy version, but a demonstration of what appears to be a new flight simulator is also included on the disc. **Planetside** features multiplane scrolling graphics, a very high frame rate, and what appears to be fractal generated mountains. The demo is noninteractive and streams data off the CD during playback.

Dominion Software produced **Advanced Military Systems**, a sort of database with information on military hardware and weapons systems. The package lets you bring up info on specific systems; the info includes several scanned photos, a narration with a musical background, and brief specifications on the system. The photos are generally of poor quality, with a distinctly greenish cast. While the presentation is a step above the text-only databases typical of MS-DOS CD-ROM products, the lack of any indexing, any print output capability, or any text export capability all detract from the utility of the package, as does the poor quality of the narration.

Animated Pixels produced **The Illustrated Works of Shakespeare.** This is also essentially a database product, but a much better execution. While it still lacks any print output or text export capability, it does have an index and a search function. (This points up one of the major defects in not including a keyboard with the CDTV. Entering text using the remote control is a slow and tedious process. None of the products I looked at offered a good solution to this problem. Selecting a single letter of the alphabet at a time from an alphabetical grid on-screen via the arrow keys on the remote is no fun at all. If you make a mistake in selecting a letter, you must then select the delete button.) The "Illustrated" part of the title refers to the pen-and-ink style illustrations that accompany the text.

Two products from Xiphias offer yet another perspective on the database product approach. **The Time Table of History: Science and Innovation** includes over six thousand stories covering key events in science, from the "Big Bang" to the latest (1991) headlines. The interface is the most interesting I've seen so far. The search engine provides a reasonable response time, and the cursor is changed to show that a search is in progress. The stories are extremely brief, sort of a *USA Today* approach to news. There is a full index—every word in every story is indexed, which turns out to be both a blessing and a curse. The stories are in some cases enhanced by the linkage of historical photographs, illustrations, and sound bites.

The American Heritage Illustrated Encyclopedic Dictionary uses the same interface. It provides definitions for over eighty thousand words and will pronounce each word on demand. In addition, there

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Copyright © 1991. All rights reserved. *Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.*

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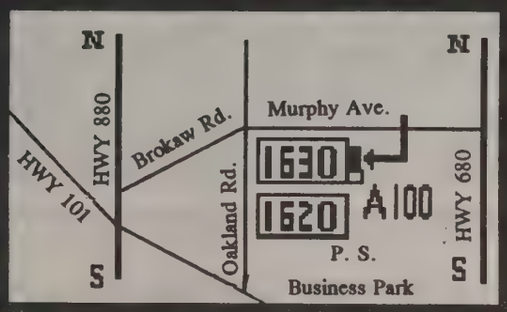

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386SX16.....160	386SX20/25.....180/185

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MAXTOR 130MB/15ms.. 335	CONNER 120MB/18ms...325
MAXTOR 213MB/16ms.. 550	CONNER 200MB/16ms...530

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NON-INT .28 SVGA....379	SONY 1304 .25 SVGA...559

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TRIDENT VGA 512K(1024 x 768)..... 55
TRIDENT 8900C 1 MB(1024 x 768)..... 76
TSENG LAB ET400AX 1MB.....108
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are several thousand illustrations, and every word in every definition is indexed and hot-linked. This lets you look up words in definitions that you are unfamiliar with. Of all the CDTV titles I looked at, this was the one that I found most interesting and useful.

CDTV ON YOUR AMIGA

While owning a CDTV makes using CDTV titles easier, current Amiga owners may want to consider adding a CD-ROM drive instead. If you've already got a SCSI port on your Amiga—and most hard drive interface cards provide one—you can purchase a SCSI interfaced CD-ROM drive and install it on your Amiga. You'll need a SCSI CD-ROM driver, either from Canadian Prototype Replicas or from Xetec (other companies are also developing software drivers).

When I tested this setup, the Lemmings and Advanced Military Systems discs worked out of the box, and the Illustrated Works of Shakespeare worked with just a little tweaking to its startup sequence. For some reason the Xiphias discs would not work. Commodore has been advising CDTV developers on anti-piracy techniques (as if everyone had either a 600MB hard drive to copy CD-ROMs to or a $20,000 CD-ROM write-once system), and it's possible that some errant protection scheme is the cause of the failure. Equally possible is that the program relies on some CDTV-specific ROM routine.

Commodore has released an upgrade kit for CDTV that includes a keyboard, mouse, and floppy drive for under $300. This signals that the company has finally given up on the myopic marketing position that denied CDTV was a computer.

IN OTHER NEWS

Late-breaking news from Commodore: They've developed a standalone runtime module for AmigaVision which they will license to developers for a reasonable fee. It requires far less memory overhead to play AmigaVision flows, and this will let more developers use AmigaVision as an authoring system.

Most developers expressed a preference that Commodore release the runtime with no charges attached. The license fee may limit the release of shareware flows, but most expect that users will ignore the license requirement; and Commodore insiders have said informally that they anticipate that the runtime will "be in everyone's hands in a week." ■

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RESOURCES

Calendar Of Events

JANUARY

January 19 Computer Show & Sale. Hayward Centennial Hall. MarketPro. Call: (415)388-8893.

January 20 Essential MS-DOS Class. Sunnyvale. Silicon Valley Computer Society. Call: (415)326-2435.

January 21 Advanced Quark XPress Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 21 Intermediate Microsoft Word For The Mac Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 21 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

January 21–23 UniForum Conference. San Francisco. Smith & Shows. Call: (708)299-1313.

January 21–February 4 Integrated Media Production I Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

January 22 Aldus PageMaker (PC): Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 22 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

January 22 Merge Mailing In Russia: Reaching New Markets Seminar. San Francisco. BOSS-America. Call: (415)626-1372, ext. 2.

January 22–24 NeXTWORLD Expo: First International NeXT Conference. San Francisco. *NeXTWORLD* Magazine. Call: World Expo Corp., (508)879-6700.

January 22–24 UniForum: The International Conference Of UNIX And Open Systems Professionals. San Francisco. UniForum. Call: 1-800-323-5155.

January 23 Advanced Microsoft Word For The Mac Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 23 HyperTalk Scripting Class. San Jose. Abacus Training. Call: (415)759-2481.

January 23 Intro To The Macintosh Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 23 Microsoft Excel (PC): Level Two Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 23–24 Advanced PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

January 24 Paradox 3.5: Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 24 Power Macintosh Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 25 Beginning Windows Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

January 25 Beginning Word For Windows Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

January 25 Beginning WordPerfect Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

January 25 Computer Show & Sale. Cow Palace. Computer Swap. Call: 1-800-533-7220. BBS: (415)464-6408.

January 25 IBM PC Clone Advanced Troubleshooting & Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

January 25 SEF Seminar On The Legal Aspects Of Software Development. Sunnyvale. SEF. Pete Antoniak, (415)952-2375.

January 27 Beginning Aldus FreeHand Class. San Jose. Abacus Training. Call: (415)759-2481.

January 27 DOS 5.0: Intro To PC Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 27 Intro To The Macintosh Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 27 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

January 27–28 Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

January 28 Beginning FileMaker Pro Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 28–30 Third Annual Windows & OS/2 Conference. San Jose. PC Week. Call: (510)601-5000.

January 29 Beginning Aldus Persuasion Class. San Jose. Abacus Training. Call: (415)759-2481.

January 29 Intro To Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

January 30 Advanced Aldus PageMaker Class. San Francisco. Abacus Training. Call: (415)759-2481.

January 30 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

JANUARY 25

SEF SEMINAR ON THE LEGAL NEEDS OF THE SOFTWARE ENTREPRENEUR

Sheraton Sunnyvale

The Software Entrepreneurs' Forum is sponsoring a one-day seminar on the legal needs of the software entrepreneur. Topics include legal tips, tricks, and traps associated with software development and publishing, as well as how to identify and patent software. Call: Pete Antoniak, (415)952-2375, or SEF, (415)364-1571.

FEBRUARY

February 3 Installing NetWare v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 3–5 Project Management Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

February 4 Intro WordPerfect For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 4 Macintosh Basics Class. San

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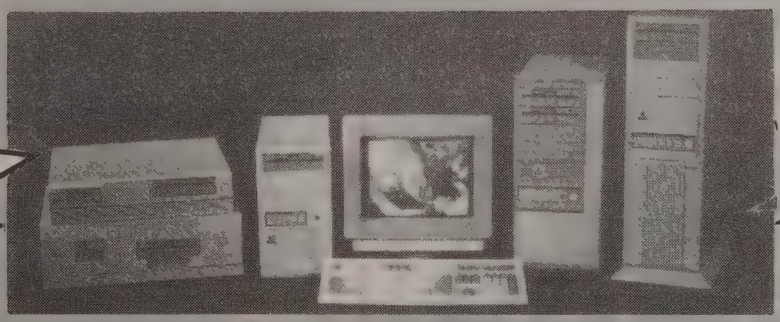

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Maxtor 7120A, 130 MB IDE, 17msec	360
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Maxtor 360 MB, 675 MB ESDI/SCSI, 14msec	Call
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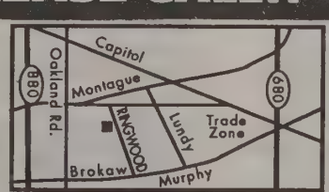

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Calendar Of Events continued

Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 4–May 18 4.4BSD UNIX Kernel Internals Course. UC Berkeley. University Extension. Call: (510)642-4111.

FEBRUARY 13–14

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February 5–6 PAL Application Language Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 6 Excel For The Macintosh Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 6 Intro To DOS Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 8 Building & Upgrading An IBM PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 8 Intermediate Macintosh Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 8–9 Virtual Reality Workshop. San Francisco. Center For Electronic Art. Call: (415)882-7063.

February 10 Intro To Quattro Pro Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 11 FileMaker Pro Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 11 NetWare v2.2 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 12 Beginning Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 13 Intermediate WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 13 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 13–14 Advanced PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 14 Beginning PAL Class. San Francisco. Abacus Training. Call: (415)759-2481.

February 14 Paradox Level Three (v3.5) Class. San Francisco. Abacus Training. Call: (415)759-2481.

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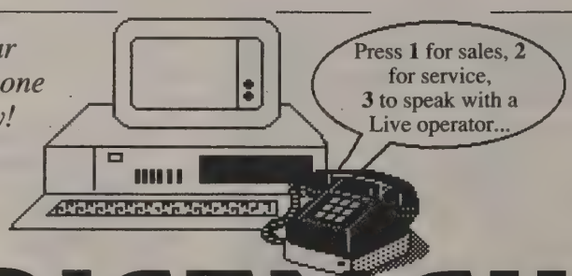

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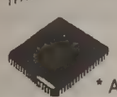

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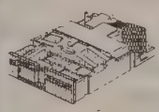

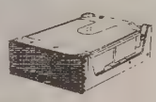
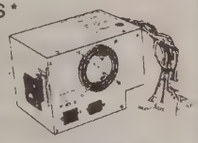

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*POWER SUPPLIES * MONITORS *
* FLOPPY & HARD DISK DRIVES *
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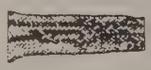
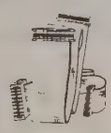
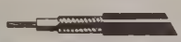
* VIDEO ADAPTORS * CABLES *
* MEMORY * JOYSTICKS * MEDIA *
*PROGRAMMERS & ERASERS *
* ACCESSORIES *

Wire, Cable & Tubing..







* SINGLE CONDUCTOR * MULTICONDUCTOR * SHIELDED * COAXIAL *
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* NUTS * BOLTS * SCREWS * LUGS * TERMINALS *
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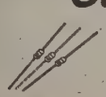
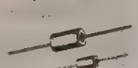

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4837 Amber Ln., Sacramento, CA 95841	(916)338-2545
6819 Redwood Dr., Cotati, CA 94931	(707)792-2277

Calendar Of Events continued

February 15 Computer Show & Sale. Oakland Coliseum. Computer Swap. Call: 1-800-533-7220. BBS: (415)464-6408.

February 15 IBM PC Clone Troubleshooting And Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 17 Installing NetWare v3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 18 Harvard Graphics Class. San Francisco. Abacus Training. Call: (415)759-2481.

February 18 Troubleshooting A Novell Network v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 18–20 CASE World Conference & Exposition. Santa Clara. Digital Consulting. Call: (508)470-3880.

February 19 Advanced WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 19 Intermediate Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 19 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 19–20 Pen Computing 1992: A Technologic Conference. San Jose. Technologic Partners. Call: (212)696-9330.

February 20 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 20–21 Advanced Microsoft Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 20–21 Advanced PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 22 Computer Show & Sale. Cow Palace. Computer Swap. Call: 1-800-533-7220. BBS: (415)464-6408.

February 22 IBM PC Clone Troubleshooting And Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 23 HyperCard Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 23–28 Software Development Spring '92 Conference & Expo. Santa Clara. Miller Freeman. Call: (415)905-2414.

February 24–25 Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

February 25 Protecting Your Business Lifeline: Information Security In The '90s Seminar. San Francisco. CSI. Call: (415)905-2626.

February 25 Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 25–March 10 Oasis Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

February 26 Advanced Paradox Class. Emeryville. Northwest Computer Systems.

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386-33 64K CACHE GCP-ASIC	$585
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486-33 W/256K CACHE	$770
486-33 W/64K CACHE	$695

OTHERS

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386-33 64K CACHE, W/CPU	$395
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MONITORS

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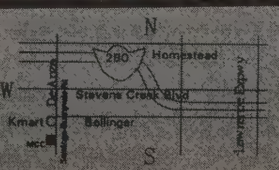

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4x9-70	149		
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256x1-120	1.10	64x4-80	1.35
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386DX-33	198	386SX-25	105
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386DX-16/20	CALL		
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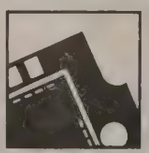

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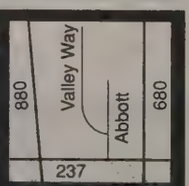

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RESOURCES

Calendar Of Events continued

Call: (510)653-0808.

February 26 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 26 Intro To Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 26 Microsoft Excel 3.0 Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

February 27 Illustrator Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 27 Intermediate Lotus 1-2-3 Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 27 Scanner Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 27–28 Legal Word For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 28 NetWare v3.11 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 29 Advanced DOS & Batch File Programming Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

February 29 Computer Show & Sale. San Mateo County Expo Center. Computer Swap. Call: 1-800-533-7220. BBS: (415)464-6408.

February 29 DTP With WordPerfect 5.0/5.1 Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

February 29 Survey Of Popular Utility Software Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

MARCH

March 2 Using WordPerfect (Mac) Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 2–3 Integrating Image And Information Processing Seminar. San Francisco. Digital Consulting. Call: (508)470-3880.

March 2–4 Project Management Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 3 Intro WordPerfect For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 4 Installing NetWare v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 4 Using System 7.0 For The Mac Class. San Jose. Abacus Training. Call: (415)759-2481.

March 4–5 Intermediate MacWrite II Class. San Jose. Abacus Training. Call: (415)759-2481.

March 5 Creative Digital Photography Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 5–6 An Intensive Intro To T1/T3 Networking Seminar. San Francisco. Data-Tech Institute. Call: (201)478-5400.

March 7 Computer Show & Sale. Santa Clara County Fairgrounds. Computer Swap. Call: 1-800-533-7220. BBS: (415)464-6408.

March 9 Project Management Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 10 Installing NetWare v3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 10–12 The International Conference & Exposition On Multimedia And CD-ROM. San Francisco. Microsoft. Call: (203)964-8287.

March 11 Beginning Claris Resolve Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 11 Beginning Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 11 NetWare v2.2 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 12 Intermediate WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 12 Windows 3.0 Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 13 Advanced WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 13 Intermediate Claris Resolve Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 16 Intro To Quattro Pro Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

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Calendar Of Events continued

March 16–17 Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 17 Intro To The PC/Beginning DOS 3.x Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 17 NetWare v3.11 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18 Intermediate Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18 Troubleshooting A Novell Network v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18–20 The Second Conference On Computers, Freedom, And Privacy. Washington, DC. ACM. Call: (202)994-7238.

March 18–25 Modelshop Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Advanced PhotoShop Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Creative Digital Photography Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Intermediate Microsoft Excel Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 19–20 Advanced Microsoft Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 23 Intro To Macintosh Networks Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 23–24 Adobe Illustrator Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 23–27 DB/EXPO '92 Conference & Expo. San Francisco. Norm De Nardi Enterprises. Call: (415)941-8440.

March 25 Advanced Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 25 Intro To Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 26 Intermediate Microsoft Excel Class. San Jose. Abacus Training. Call: (415)759-2481.

March 26–27 Legal Word For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 27 Advanced Microsoft Word (Mac) Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 30 Microsoft Excel 3.0 Level Two Class. San Francisco. Abacus Training. Call (415)759-2481.

March 31 Advanced Microsoft Word (Mac) Class. San Jose. Abacus Training. Call (415)759-2481. ■

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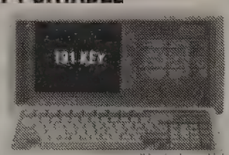

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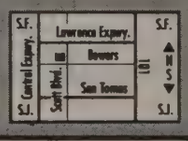

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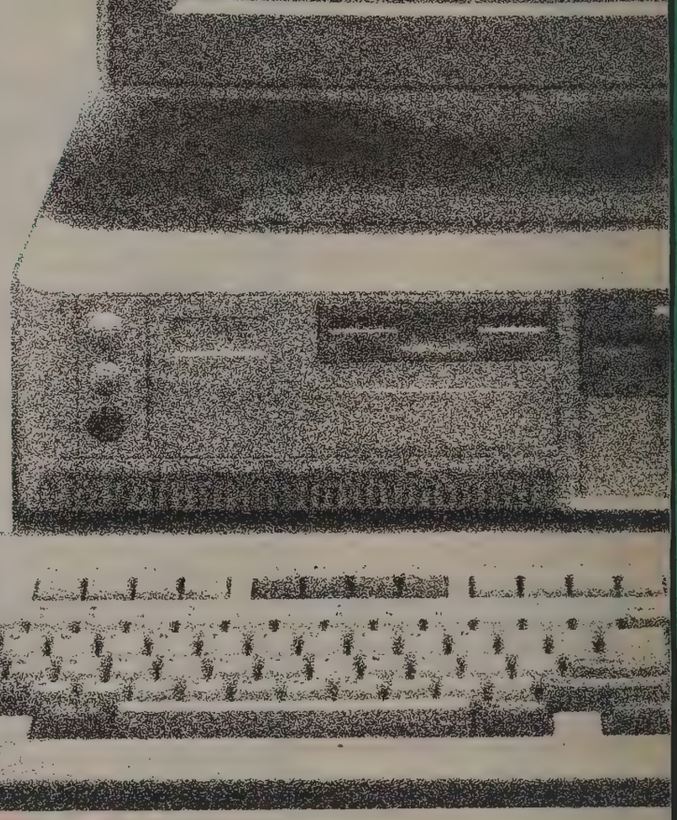

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The UNIX Connection. (707)792-0420. 24 hrs., 1200/2400. UNIX oriented, but files for DOS, Mac, Amiga. 300+MB storage. Sysop: Ren Just. [Exp. #91.]

916

Leather First BBS. (916)974-1262, 362-4663. Sacramento's first leather BBS, reg. required, 18 yrs. or older. Sysop: Master Wade & Bob E. [Exp. #93.]

Pacific Exchange (Sacramento) News. (916)965-0301. 11,000+ files, online restaurants & recipes. [Exp. #91.]

ASSOCIATIONS

American Association For Artificial Intelligence (AAAI). Call: Rick Skalsky, (415)328-3123. [Exp. #91.]

Association For Women In Computing. Meetings: 1st Wed., 5:30 pm, San Francisco. Call: (415)979-8450. [Exp. #93.]

The Association For Worldwide Software Support Management. Meetings: 2nd Tues., Milpitas Sheraton. Call: Mikael Blaisdell, (415)865-1323. [Exp. #92.]

Association Of Database Developers (ADD). Meetings: 2nd Thurs., 7:00 pm, Fort Mason Center, San Francisco. Organization for professional

Continued

ASSOCIATIONS

xBASE language systems developers. Membership, Call: Lisa, (510)339-6777. Info: JoAnn, (415)863-6706. [Exp. #96.]

Bay Area Clipper Developers Association. Meetings: 4th Mon., 7:00 pm, Fort Mason, Bldg. C. Call: Barbara Paltiel, (415)345-0152. [Exp. #92.]

The Black Data Processing Associates, Silicon Valley Chapter. Meetings: 4th Thurs., 6:30 pm, Amdahl Corp., Sunnyvale. Call: Doug Jones, (408)737-5999. [Exp. #94.]

Computer Professionals For Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, room 608-7. Call: Judy Stern, (510)643-7499. [Exp. #92.]

Data Processing Management Association. Call: (415)978-0868. [Exp. #91.]

IEEE Computer Society, San Francisco Chapter. Meetings: 3rd Thurs. Call: (415)905-4400. [Exp. #92.]

Independent Computer Consultants Association, Silicon Valley Chapter. Meetings: 4th Thurs., 6:00 pm. Meetings are open to all. Call: ICCA, (408)492-8888. [Exp. #96.]

Independent Computer Consultants Association. Meetings: 2nd Wed., 6:00 pm. Meetings are open to nonmembers and members. Call: ICCA, (415)441-2948. [Exp. #91.]

International Network Of Women In Technology (WIT). Meetings: 2nd Sun., Mountain View. Call: (415)857-0314 or (818)990-1987. [Exp. #96.]

Networkers' Toastmasters. Meetings: Every Tues., noon–1:00 pm, 2560 N. First St., San Jose. Call: Mona Kellem, (408)534-1255. [Exp. #92.]

North Bay Systems Professionals. Meetings: 3rd Wed., 7:00 pm, Holiday Inn, Terra Linda, 1010 Northgate Dr., San Rafael. NBSP provides a forum and network for system professionals. Call: Harry Chapman, (415)291-0174. [Exp. #96.]

SBEA (South Bay Entrepeneurs Association). Meetings: Twice weekly. Financial success and personal growth through teamwork. Call: (408)727-5950. BBS: (408)267-8325. [Exp. #96.]

Society For Technical Communication, Berkeley Chapter. Meetings: 2nd Wed., 6:00 pm, Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Call: Rich Julius, (415)837-0397. [Exp #96.]

Society For Technical Communication, East Bay Chapter. Meetings: 1st Thurs. Call: Corinne Stefanick, (510)769-8931. [Exp. #92.]

Society For Technical Communication, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)985-7121. [Exp. #92.]

Society For Technical Communication, Silicon Valley Chapter. Meetings: 4th Thurs. Call: September Jenner, (408)971-2336. [Exp. #91.]

Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219. [Exp. #92.]

United Sysops Association. Meetings: 2nd Wed., 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Organization of bulletin obard sysops and users. Call: Bill Strouse, (408)739-8753. [Exp. #96.]

Women's Computer Society. Meetings: Last Tues. Call: Tanya Halepota, (415)949-3936. [Exp. #92.]

USER GROUPS

ACCOUNTING SOFTWARE

Account-Mate Bay Area User Group. Meetings: 3rd Thurs., 7:00 pm, S. Branch Berkeley Library, 1901 Russell. Call: Bohen, (510)465-7815. [Exp. #93.]

Computer Associates User Group. Meetings: 1st month of quarter on 3rd Wednesdays. Holiday Inn, 1500 Van Ness. Come share ideas and information with other local users of Computer Associates Accounting Software! Call: Beth E. Markus, (415)864-6770. [Exp. #93.]

AMIGA

A500 Programming Team. A club for those Amiga users who can write programs for A500. Call: Michael, (408)270-4596. [Exp. #95.]

AAA—Amiga Addicts Anonymous. Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, BBS, pub. dom. disks, info line. Call: (510)935-0829. [Exp. #96.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #95.]

Amiga Nation. Meetings: 1st Tues., 7:30 pm, 324 Springs St., Suisun. Call: (707)421-2283. [Exp. #96.]

AUM—Amiga Users Of Marin. Meetings: 3rd Wed., 7:30 pm, rm. 190, Science Center, College of Marin. Call: Bob, (415)924-5384. AUMBBS: (415)485-5895. [Exp. #92.]

AWEST Amiga Users. Meetings: 1st Wed., 7:00 pm, Computer Showcase, 2739 Geary, SF. Call: (415)584-8406. [Exp. #96.]

FAUG—First Amiga User's Group. Meetings: 1st Tues., 7:00 pm, Palo Alto Hyatt. Call: Mike Fisher, (415)855-9426, BBS (415)595-2679. [Exp. #91.]

3rd Dimension—Image/Lightwave User Group. Meetings: 1st, 3rd & 5th Mon., Computer Showcase, 2739 Geary Blvd, SF. Call: Ollie, (415)863-8792. [Exp. #93.]

APL

APL Bay Area User Group. Meetings: 2nd Mon., 7:00 pm. Call: Tibor Horvath, (415)283-5611. [Exp. #91.]

APRICOT

Apricot User Group, East Bay Chapter. For Apricot and other IBM-compatible PCs, hardware/software assistance & info. New members welcome. Call: Ron, (510)828-9643. [Exp. #95.]

AT&T

AT&T Computer User Group, North Bay. Meetings: 1st Wed., new user education, 6:30 pm, program, 7:00 pm, San Francisco AT&T Bldg., 50 Fremont St. Call: Jim Lansing, (415)885-6631; BBS (415)829-6027. [Exp. #96.]

AT&T Computer User Group, South Bay. Meetings: 3rd Wed., new user education, 6:00 pm, program, 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Joe Lipsig, (408)733-6522; BBS (408)946-7734. [Exp. #96.]

AT&T UNIX Computer User Group, South Bay. Meetings: 4th Wed., new user education, 6:30 pm, program, 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call: Thad Floryan, (408)985-7100; USENET, thad@cup.portal.com. [Exp. #96.]

ATARI

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon., 7:30 pm, Agnews Aud., 2nd fl., San Jose. Call: Joe Fischer, (408)988-3065. [Exp. #93.]

San Leandro Computer Club. Meetings: 1st Tues., 8:00 pm, San Leandro Public Library, 300 Estudillo Ave. 8/16/32-bit, SIGs. Call: Bob Wolley, (510)865-1672. [Exp. #93.]

Santa Clara Atari User Group. Meetings: 2nd Wed., 7:00 pm, San Jose Computers Showroom, 1278 Alma Court, San Jose, near First and Alma. Call: Ron Reade, President, (408)225-7162. BBS: (408)848-6032, 300/1200/2400. [Exp. #94.]

ST Programming Team. A club for those Atari users who can write programs for ST/STE. Call: Michael, (408)270-4596. [Exp. #95.]

COMMODORE

CAVE—Commodore Amiga Video Enthusiasts. Meetings: Every other Sat., 8:00 pm, 304 Springs St., Old Suisun. Call: Ron, (707)421-2283. [Exp. #95.]

The Commie Party. Meetings: 175 Henry St., SF, CA 94114. Call: The Carrier Cafe BBS, (415)863-2981. [Exp. #93.]

Commodore Hayward User Group. Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)793-2514. [Exp. #93.]

Cupertino Chapter Of 64/More Commodore User Group. Meetings: 3rd Sun., 6:00 pm, Cupertino Library. Call: (408)262-9334. [Exp. #93.]

CWEST Commodore 64/128. Meetings: 3rd. Wed., 7:00 pm, Fort Mason. For info: 1564 Waller #B, San Francisco, 94117. Call: (415)626-9946. BBS, (415)552-9320. [Exp. #96.]

North Valley Chapter Of 64/More Commodore User Group. Meetings: 2nd Sat, 10:00 am, Milpitas Library. Call: (408)262-9334. [Exp. #93.]

CP/M

San Francisco Computer Society. Meetings: 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallegher, (415)929-0252. [Exp. #93.]

dBASE

ADD dBASE Software SIG. Meetings: 3rd Tues, 7:30 pm, Fort Mason Center, San Francisco. Led by Miriam Liskin. Call: JoAnn, (415)863-6706. [Exp. #96.]

ADD Fox Software SIG. Meetings: 1st Thurs., 7:00 pm, Fort Mason Center, San Francisco. Call: JoAnn, (415)863-6706. [Exp. #96.]

East Bay Database User Group. Meetings: 3rd Sun., 1:30 pm, 2415 Grant St., Berkeley. Call: David Chilcott, (510)653-1303. [Exp. #93.]

Silicon Valley Computer Society X-Base Language Group/dBASE SIG. Meetings: 1st Tues., 7:00 pm, Birchwood Systems, 2001 Gateway Pl., Suite 480 W., San Jose. Call: Fletcher Johnson (408)283-1333 (days & early evenings). [Exp. #91.]

Silicon Valley Computer Society X-Base Language Group/FoxPro SIG. Meetings: 2nd Thurs., 7:00 pm, Birchwood Systems, 2001 Gateway Pl., Suite 480 W., San Jose. Call: Fletcher Johnson (408)283-1333 (days & early evenings). [Exp. #91.]

DESKTOP PUBLISHING

Bay Area Desktop Publishing User Group. Meetings: 1st Tues., 7:00 pm, 2493 Telegraph Ave., Berkeley. Computer-based tutorials on PageMaker 4.0. Speaker: Dr. C.J. Wallia. Call: (510)548-7712. [Exp. #92.]

EPSON

Bay Area Epson Salts. Meetings: 2nd Tues., 7:30 pm, 2611 Broadway, Redwood City. Call: Joe, (415)364-9232, or Tom, (415)992-5475. [Exp. #91.]

FORTH

Forth Interest Group Of North Bay. Meetings: 2nd Sat., 1–5 pm, 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (415)376-5241. [Exp. #91.]

Sacramento FORTH Interest Group. Meetings: 4th Wed., 7:00 pm, SMUD, 1708 59th St., rm. A. Call: Bob Nash, (916)487-2044. [Exp. #92.]

FREEDOM, PRIVACY, AND TECHNOLOGY

BMUG SIG On Freedom, Privacy, And Technology. Meetings: Last Sun., 2:00 pm, BMUG office, 2055 Center St., Berkeley. Call: Judi Clark, (510)549-2684. [Exp. #93.]

IBM AND COMPATIBLES

Alameda Computer User Group. Meetings: 2nd Wed., 7:30 pm, Social Hall, Temple Israel, Island Dr. and Mecartney Rd. Providing an informal forum for both Macintosh and PC users to explore questions about hardware and software. Call: Dan Meyers, (510)521-3323. [Exp. #96.]

Computer Beginner & User Group. For all IBM, Amiga, Atari beginners or experienced users. Software/hardware assistance & info. Call: Michael, (408)274-7330. [Exp. #93.]

Diablo Valley User Group. Meetings: 1st Thurs., Cardondolet High School, Treat Blvd. and Winton Ave. in Concord. Call: (510)943-1637. [Exp. #96.]

EastBay FOG. Meetings: 2nd Wed. All microcomputers, MS-DOS, CP/M. Call: (415)272-9099. [Exp. #91.]

Gaming Strategy Group. Fast, detailed hints & strategies on all IBM games. Call: Michael, (408)270-4596. [Exp. #93.]

Golden Gate Computer Society (GGCS). Meetings: 4th Mon., 7:30 pm, San Rafael Community Center. Call: Steve Greenberg, (415)485-0136. [Exp. #95.]

Napa Valley PC User Group. Meetings: 2nd Wed., 7:30 pm, 10 Chapel Hill Dr., Napa. Call: Lee Schwab. [Exp. #93.]

PC BasicS: Silicon Valley Computer Society SIG. Meetings: 3rd Mon., 7:30 pm, 847 W. Maude Ave., Sunnyvale. Talks presented by Rich Wingerter of Zip Consulting & Design. Call: (415)326-2435. [Exp. #96.]

PC Programming Team. A club for those IBM users who can write programs for 286, 386, PS/2 PC. Call: (408)270-4596. [Exp. #95.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-9981. BBS (415)571-9259. [Exp. #93.]

Pro Players. Club for all games and utilities users. Write: PO Box 84144, Hung Hom Bay Post Office, Hong Kong. [Exp. #93.]

San Francisco Business Computers. Meetings: 4th Thurs., 5:30 pm. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. [Exp. #92.]

San Francisco Computer Society. Meetings: 1st Mon., 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallegher, (415)929-0252. [Exp. #93.]

KNOWLEDGEMAN

Bay Area KnowledgeMan (And Guru) User Group. Meetings: 1st Tues., 6:30 pm., JNZ, Inc., 826 Las Trampas Rd., Lafayette. A forum for discussion and info concerning mdbs products, esp. KnowledgeMan and Guru. Call: (510)947-4878. [Exp. #93.]

MACINTOSH

BMUG West. Meetings: Last Mon., 6:30 pm, San Francisco Exploratorium. Call: (510)549-BMUG. [Exp. #95.]

BMUG—Berkeley Macintosh User Group. Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #95.]

International Macintosh Users Group (IMUG). Meetings: 3rd Thurs., 7:00 pm, 10500 N.

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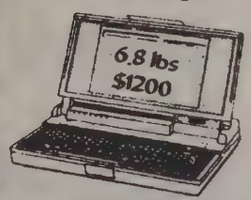

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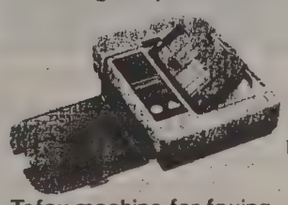

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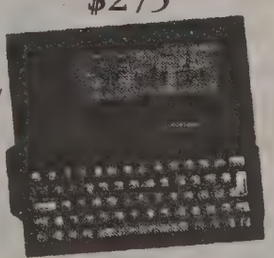

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USER GROUPS

De Anza Blvd., Cupertino. A forum for people using Macintosh computers in different languages. Call: Sachiko Berry, (408)862-7724 (weekdays). [Exp. #96.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Jim Weil, (415)796-7169. [Exp. #95.]

Women's Macintosh User Group. Meetings: 2nd Tues., 7:00 pm, ComputerWare, Palo Alto. Call: Buffy Joseph, (415)792-2840 or Tayna Halepota, (415)949-3936. [Exp. #93.]

MULTIMEDIA

BMUG Multimedia SIG. Meetings: 2nd Mon., 6:00 pm, Call: (510)549-BMUG. [Exp. #95.]

International Interactive Communications Society—IICS. Meetings: 2nd Wed., 7:30 pm, Call: IICS Hotline, (415)328-7318. [Exp. #93.]

Multimedia SIG. Meetings: 1st Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Palo Alto, Rm. H-1. SIG of Software Entrepreneurs' Forum. Call: Patrick Milligan, (408)257-1547. [Exp. #95.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)747-4356. [Exp. #91.]

NEURAL NETWORKS

Neural Networks SIG. SIG for Neural Networks and its applications. Call: Kumar, (408)946-5835. [Exp. #91.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. [Exp. #93.]

PARADOX

Bay Area Paradox User Group—BAPALS. Meetings: 4th Tues., 4:00 pm, SF State University Downtown Campus. Forum for users and developers of all levels. Call: Patricia Hickey, (415)883-1020. [Exp. #96.]

PROGRAMMING LANGUAGES

Silicon Valley Computer Society C Programming SIG. Meetings: 3rd Mon., 7:00 pm, Doubletree Hotel, 5101 Great America Pkwy., Santa Clara. Discuss C related issues and occasional speakers. Call: Fletcher Johnson, (408)283-1333 (days & early evenings). [Exp. #91.]

R:BASE

East Bay R:Base Users Group. Meetings: 2nd Tues. Call: Longwell Assoc., (510)451-5316. [Exp. #93.]

Peninsula R:Base User Group. Call: Don Whitecar, (415)592-5033. [Exp. #95.]

SQL

SQL_Forum/Bay Area SQL Database Server User Group. Meetings: Once a month in downtown SF. Oracle, SQL Server, SQLBase, and more. Call: Robert Gentry, DBBS, Inc. (415)583-3000. [Exp. #91.]

TELECOMMUNICATIONS

BMUG Telecom SIG. Meetings: Last Wed., 8:00 pm. How to use your modem, terminal programs, and the BMUG BBS. Call: (510)549-BMUG. [Exp. #95.]

TEXAS INSTRUMENTS

Santa Clara Valley TIPC Group. Meetings: 4th Thurs., 7:00 pm, Magnolia Inn, 176 S. Bernardo, Sunnyvale. Newsletter, library. Call: Thor, (415)386-5237. [Exp. #93.]

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #95.]

THEOS

Theos User Group. Call: (510)785-7355. [Exp. #96.]

UNIX/XENIX

UNIX SIG. Meetings: 2nd Tues., Oracle Corp. Fitness Center, Redwood Shores. Sponsored by Software Entrepreneurs Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #92.]

UNIX/XENIX User Group Of N. CA. Write: Just Computers, PO Box 355, Cotati, CA 94931, Attn: User Group. Call: BBS, (707)792-0420. [Exp. #91.]

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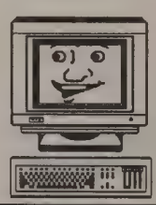

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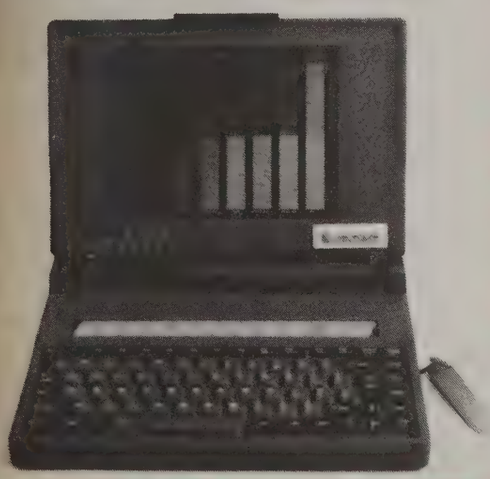

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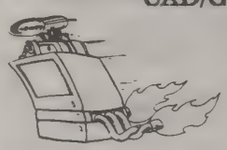

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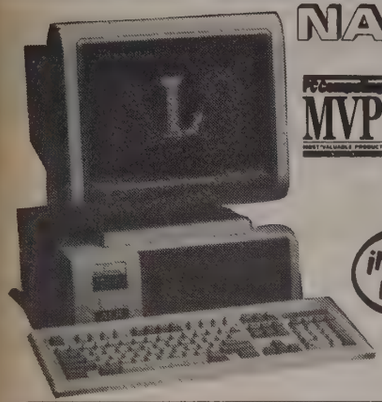

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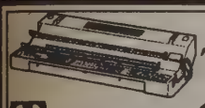

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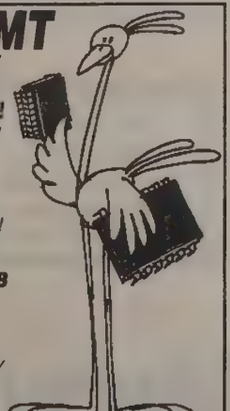

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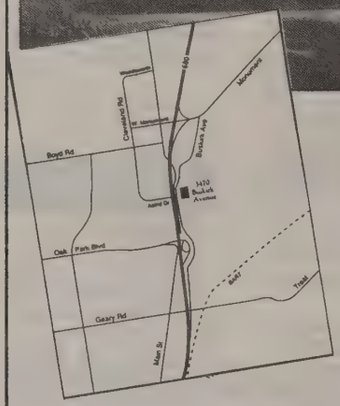

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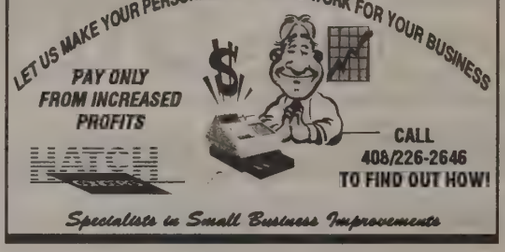
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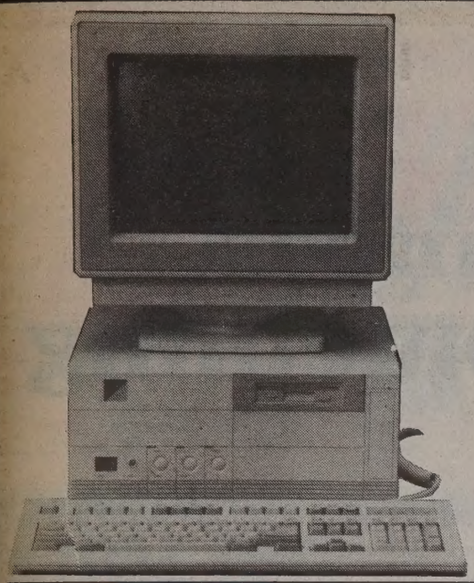

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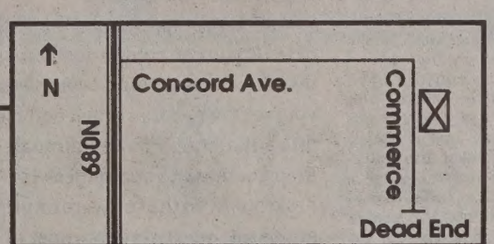

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Technology Advances Have To Mean Something

Don't They?

BY JOHN C. DVORAK

It's always popular to predict the future of computing. Everybody loves to do it because you can let yourself go with wishful thinking. You can go on and on about how we'll all be using color laptops or automatic typewriters that turn our every word into print. We imagine supercomputer desktop power by the end of the decade. I always like to imagine a credit card with 486 power in every wallet complete with the latest 1/8" 2GB hard disk. Every prediction and dream is a function of the belief that improvements in technology never end.

Technologies do not go on forever improving at the rate which we see computer power increase. But it seems as though this one is slated for a long ride. At some point we have to ask what it really means.

ALTERNATE REALITY

As an exercise, I like to think about what the desktop computer world would be like if things stopped dead at the 8080 or Z-80 microprocessor with slow hard disks and 4K memory chips. Can you imagine if the desktop computer of 1978 was the same one we were using today, instead of being on the treadmill chasing more and more MIPS and drowning in more and more bloated, sloppily coded applications?

DVORAK'S LAST COLUMN

For one thing, I'm sure the computer hobbyist would still be with us. Furthermore, the bulletin board rage would not have bloomed if we were still fighting the 300 baud barrier. People wouldn't be so easily able to exchange files over the phone lines as they are today. Diskette mailers would be hot items. There wouldn't be the fancy networks either. So floppies would still be used in a sneaker-net kind of office for file exchange.

© 1992 by John C. Dvorak. All rights reserved. *John C. Dvorak graduated from the University of California. He is a contributing editor of* PC Magazine *and* MacUser, *and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

The compute-intensive PostScript would never have evolved the way it did on the new machines, and it's unlikely that the sudden emergence of the type font as a societal commonplace would have happened the way it did. In fact, there is no reason to believe that we wouldn't still be enamored of the Courier type ball on the IBM Selectric. We can assume that laser printers wouldn't be developed and we'd be forever saddled with dot-matrix printers for small computer use. The DECWriter would still be a prestige printer, clanking away in the background.

You can compare today's 2.8MB 3 1/2" disk to the 70-170K floppy of 1978; you can compare a then-rare 5MB hard disk to today's 600MB disk. There are a lot of comparisons you can make—and then ask yourself if we're that much better off with all the complications. Is the office that much more automated with the fast new machines and their increased capabilities? How much do we really need on the desktop? Even the software improvements—which are substantial—are hardly necessary for most of the needed functions of an office computer.

One thing I'm sure we'd see in a stagnant hardware scene is a continued improvement and artistry in software. Instead of compilers that grow huge inefficient executable files (like today) the target would be more functionality, more efficiency, more power in fewer kilobytes. In fact, the stunted hardware would yield to improved software and differing techniques giving us a desktop computer probably as powerful as the 486 screamers we have today.

Can you imagine the chit-chat if this were the case?

JIM: Hey, John I got my new microcomputer!

JOHN: Wow. What did you get?

JIM: I got the newest IBM Z-80 PC running at 4MHz. It's really cool. It comes with a neat-o 5MB hard disk and 64K!

JOHN: Oh brother! It's 1992. They made it so you can use 128K, where have you been?

JIM: Man, the extra 64K costs a thousand dollars. I couldn't afford it.

JOHN: What a tightwad. What did the whole system cost with the hard disk?

JIM: $6500. Not a bad deal, huh? I also got the newest version of WordPerfect. They have it so it doesn't do all those slow overlays anymore and runs in 50K of memory.

JOHN: 50K?? What a memory hog!

Even handwriting and voice recognition seem possible in some fake future where the old hardware was still used. There's a trick to it. But it seems unlikely that real-time video and other animation and graphical improvements would ever appear on the desktop if we were stuck in the past with the 8080/Z-80 chips.

SO WHAT GOOD IS IT?

At some point you have to look at the meaning of progress. It's not really for faster spreadsheet recalcs. Who really needs it? Sure, I love the fact that my spell checker on the 486 is instantaneous, but would I throw out the computer if it weren't? I love performance, but when I travel I use a 286 laptop with a little hard disk and I find it all very functional.

But there are things that can't be done with the slow machines, and they include real-time video manipulation, and intense graphics. Bending PostScript characters is nearly impossible to do without a super-fast machine. So we have to assume that the true beneficiaries of better and better performance are at the root of the major trends in desktop computing. In other words, if video and graphics are the only categories that actually benefit from hardware advances, then any future world of computing has to be built around aspects of video and graphics.

It's fine to decry all this graphics nonsense and the trend away from the beloved command line interface. But we have to face reality based on the fact that hardware advances are only accomplishing a few things, and key among them are advances in video and graphics. Anyone who ignores this obviosity does so at their own risk.

Yeah, I know, it means we have to take all this windowing stuff seriously. ■

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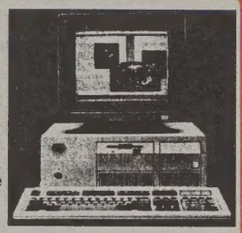

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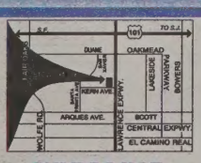

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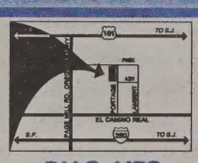

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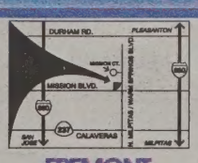

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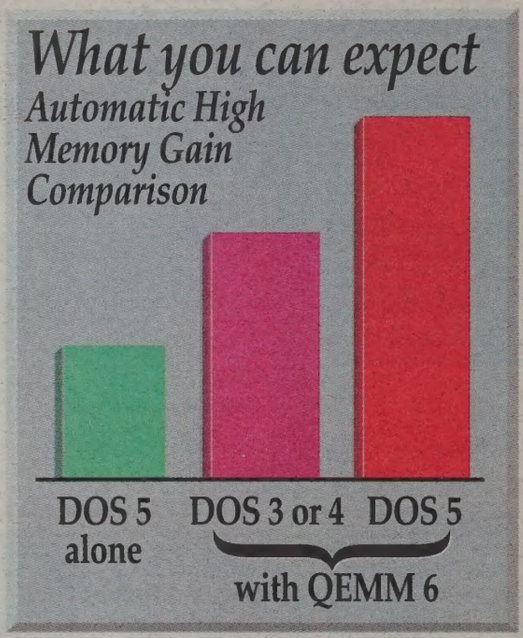

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